117 AG.6 47L

AUGUST, 1947

THE Refrigeration INDUSTRY

AIR CONDITIONING EQUIPMENT

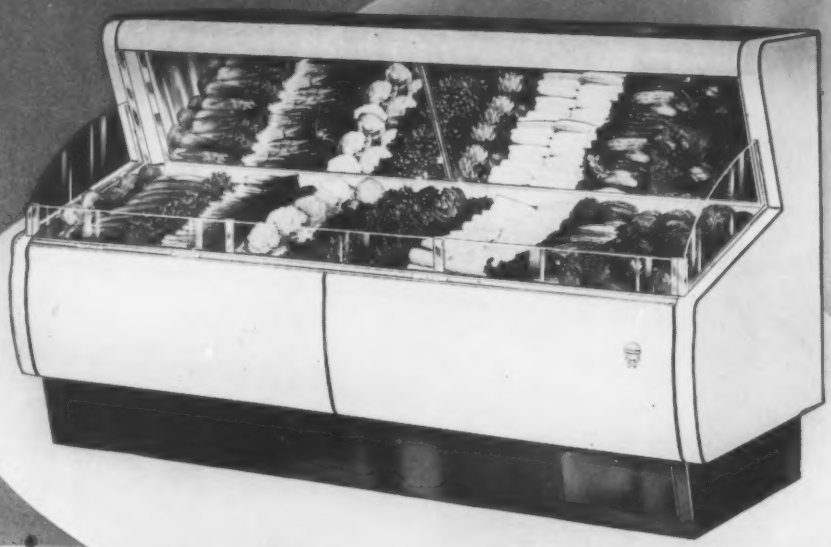
MERCHANDISING ★ INSTALLATION ★ MAINTENANCE

IN THIS ISSUE:

- You Pay - - They'll Stay . . . A Credit-Able Business
- Does Your Balance Sheet Show Black Ink or Red?
- Sidelines Are Profit Lines . . . Four-Fold Economy

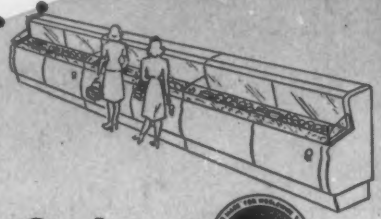
It's The New Weber

Super Serv-Master



SUPER SELF-SERVICE PRODUCE DISPLAY CASE

Mass display of produce—kept fresh, crisp and appealing in the glistening white, new Super Serv-Master—means high volume selling—at a profit. Large capacity display area provides for variety and quantity to reduce the need for frequent restocking. Waste and spoilage are minimized because of less handling. Perfectly balanced refrigeration with automatic defrosting maintains a constant circulation of cold air and moisture to reduce shrinkage and dehydration to a minimum.



WEBER Showcase & Fixture Co. Inc.
5700 Avalon Blvd., Los Angeles, Calif.
LOS ANGELES • EL PASO

Pioneers in Super Market Equipment

The HUB of good, dependable refrigeration...

...PAR Condensing Units

models and sizes from ⅙ to 5 hp. See your Par wholesaler or write for Par catalog R-98.

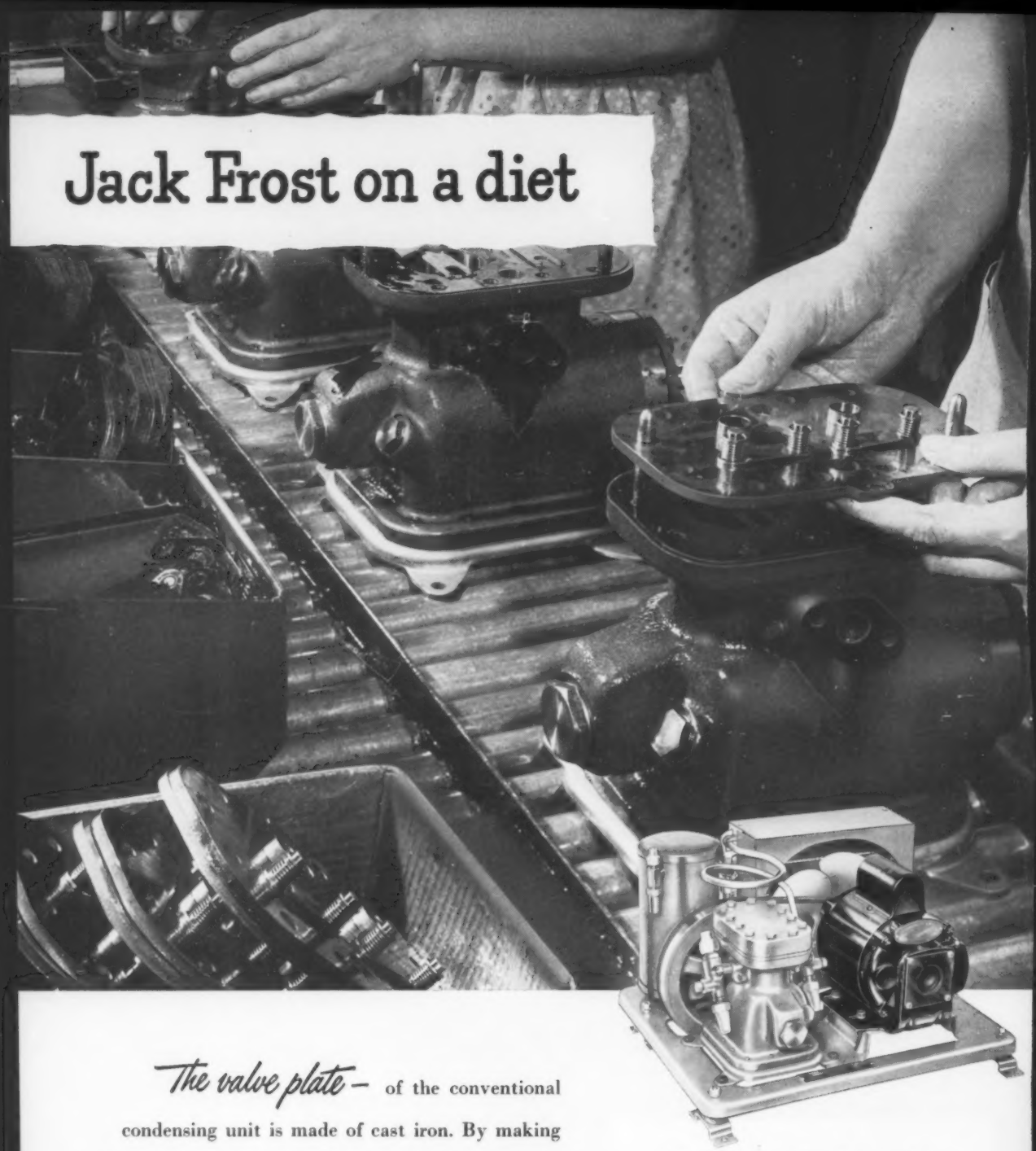
Par-Condensing Unit Line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

. . . By Comparison — You'll Buy PAR

Lynch Manufacturing Corporation

General Offices, Toledo 1 • Factory, Defiance, Ohio, U.S.A.

Jack Frost on a diet



The valve plate – of the conventional condensing unit is made of cast iron. By making this part of hardened steel, Jack & Heintz engineers have obtained high strength and rigidity with *less thickness*. This slenderizing has reduced clearance in the discharge port, contributing to the *high efficiency* of J & H Condensing Units.

Better condensing units through

JACK & HEINTZ

Mass Precision

JACK & HEINTZ PRECISION INDUSTRIES, INC., *Cleveland 1, Ohio*

THE Refrigeration INDUSTRY

VOLUME 4, NO. 8

❖

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ABC

THE COVER . . . Wide-awake merchants, like Rankin's super market in Tujunga, Calif., find hot-weather business better when they provide customers with cooled beer "to take out." A Tyler beverage cooler keeps 30 cases "on tap," and a glass-door Perfecold reach-in holds quart-size bottles for home use. Makes you thirsty just to look at it, doesn't it?

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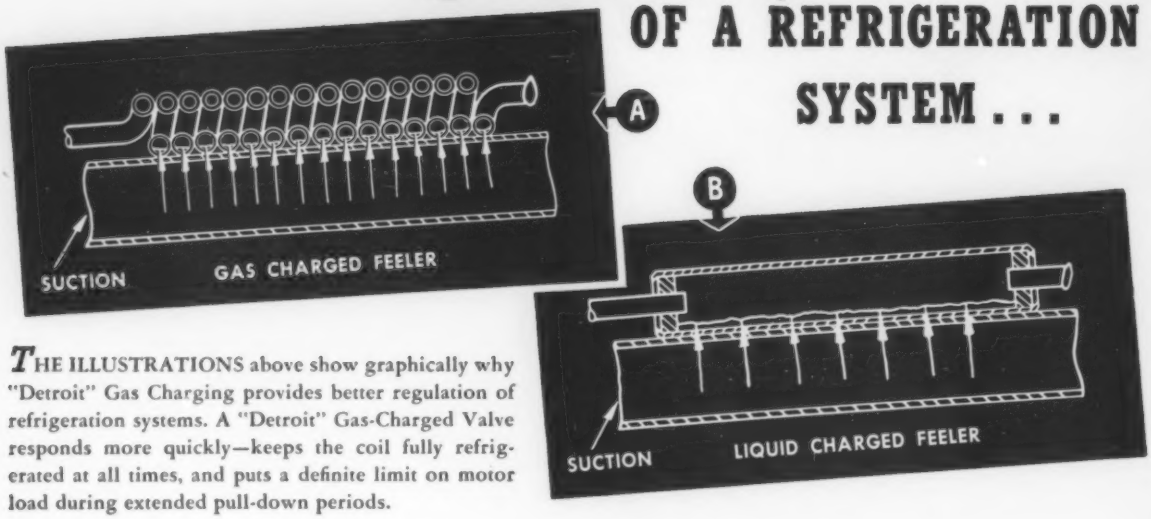
Why "DETROIT" GAS CHARGING PROVIDES *Better Regulation* OF A REFRIGERATION SYSTEM . . .



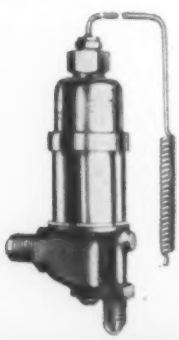
THE ILLUSTRATIONS above show graphically why "Detroit" Gas Charging provides better regulation of refrigeration systems. A "Detroit" Gas-Charged Valve responds more quickly—keeps the coil fully refrigerated at all times, and puts a definite limit on motor load during extended pull-down periods.

Illustration "A" is a cross section of a "Detroit" Gas Charged feeler bulb. When the charge of gas condenses as the bulb cools, it is deposited in small quantities which are in close contact with the suction line. The total amount of liquified gas is much smaller than in a liquid charged bulb as shown in "B".

As gas charged bulb "A" warms up, there is an instantaneous increase in pressure due to rapid vaporization of the minute quantity of liquid in the coils of the bulb. This produces the quick response characteristic of "Detroit" Gas Charged Valves.

When liquid charged bulb "B" warms up, the increase in pressure is delayed because of the thermal lag encountered in raising the temperature of the large mass of liquid to produce the necessary vaporization.

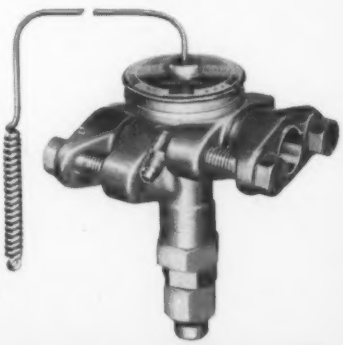
Fast response is inherent in Gas Charged power elements. Moreover, by charging the element with a carefully limited amount of gas, motor overload during the pull-down of a warm system is minimized. The valve remains closed until suction pressure is reduced to a predetermined value. Generally, a smaller motor may be used.



"Detroit" introduced Gas Charging fourteen years ago. Today Gas Charging is the accepted standard of the industry. All "Detroit" Thermostatic Valves are available Gas Charged.

No. 673 Thermostatic Expansion Valve for many years the standard of the refrigeration industry. Orifice sizes ¼" to ⅞" with capacities up to 3½ tons Freon 12 or Sulphur Dioxide and 6 tons Methyl.

No. 787 Thermostatic Expansion Valve representative of the "Detroit" large capacity line. No. 788 is rated 12 to 20 tons—No. 787—6 to 11 tons —No. 786—3 to 6 tons. Has external equalizer connection and can be furnished with No. 790 distributor with either 6, 12, or 18 openings (¼" each) for multiple distribution.



2676

DETROIT LUBRICATOR COMPANY

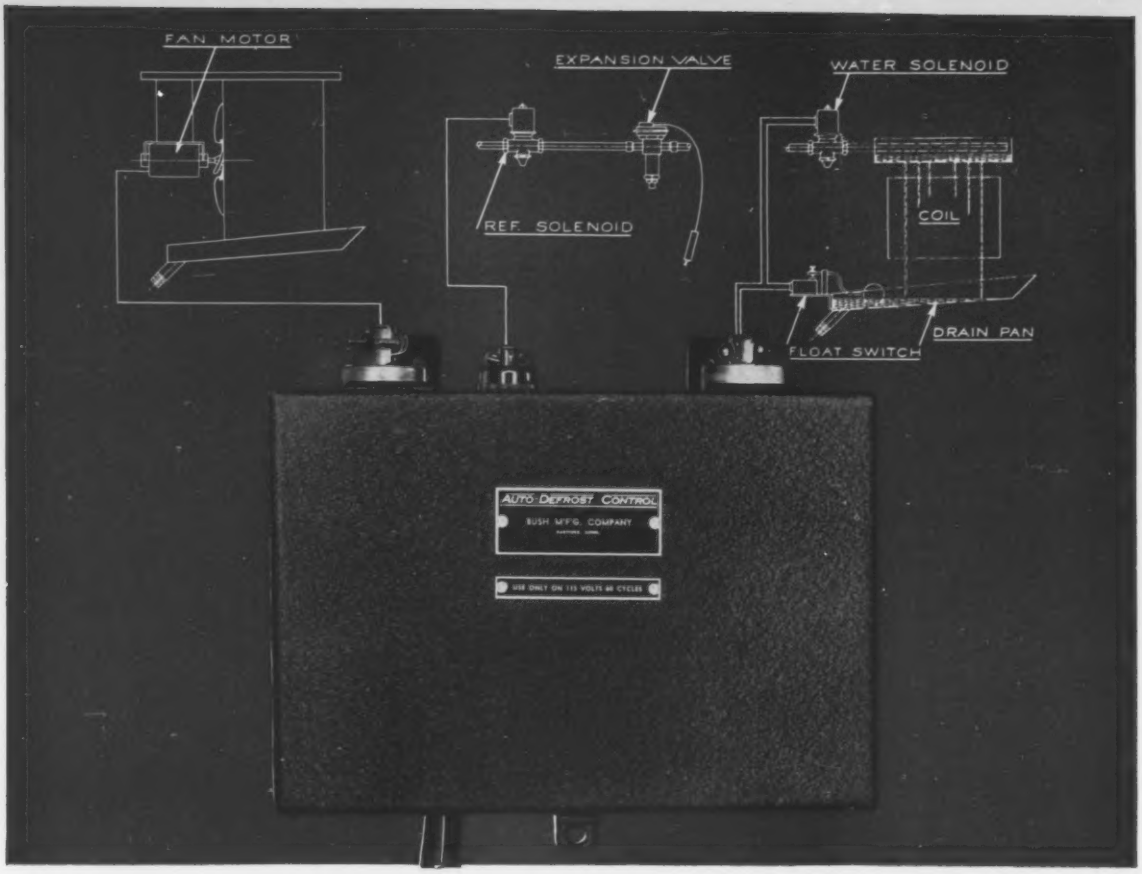
DETROIT

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED MONTREAL TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators



THERE'S A BIG DEMAND FOR AUTOMATIC DEFROSTING

. . . and Bush can provide it now

BUSH

OUR FORTIETH YEAR

Your customers will want the Bush *Auto Defrost* for, once installed, the *Auto Defrost* operates entirely without supervision . . . completely defrosting coils when it is *necessary.*

This revolutionary device is controlled by an electronic circuit, connected in series with the fan motor. When ice causes the fan to draw more current . . . as little as 5% . . . this circuit trips a relay which cuts out the fan motor, starts a timing mechanism, opens a water valve.

Six minutes later, the coil is defrosted. The water then shuts off, a four minute drainage period is allowed, and then the fan is restarted. One Bush *Auto Defrost* can handle several coolers by means of a simple relay circuit.

See your Bush factory representative about including *Auto Defrosts* on your next job.

Bush products are sold by leading refrigeration wholesalers everywhere

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The Ansul Research Staff

REPORTS ON:

SLUDGES

Approximately 90% of the sludges produced in refrigerating systems are due to moisture. The exact cause can always be determined by analysis, but the appearance of the sludge (see photos) is usually indicative of the cause.

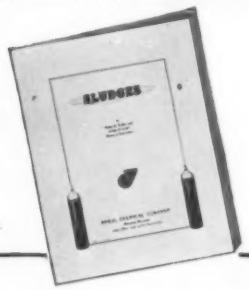
SLUDGE DERIVED FROM MOISTURE — If water is present in a machine, the nature of the sludge depends upon the type of refrigerant and length of time the water is present. All refrigerants . . . sulfur dioxide, methyl chloride, Carrene and "Freon-12" . . . react with water to produce corrosion products characteristic of each. To prevent sludge, the amount of water present in a refrigerating system must be small enough to avoid ice separation and corrosion. For "Freon-12" and methyl chloride, a quantity of water approximately .05% by weight will cause corrosion; the limit is somewhat higher for sulfur dioxide.

SLUDGE DERIVED FROM OILS — Oil sludges are characterized by total or partial solubility in carbon tetrachloride, gasoline and similar solvents. It is generally presumed that oil sludges are due to two causes: (1) an interaction between the unsaturated constituents of the oil and the refrigerant; (2) a breakdown of the oil due to heat, oxidation, friction, etc.

GRANULAR SLUDGE . . . due to moisture

FLUID SLUDGE . . . due to oil

HARD SLUDGE . . . due to moisture and oil



SEND FOR "SLUDGES"
by
Ansul Research Staff

A detailed analysis of the refrigeration sludge problem.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, cooperative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

The Ansul Research staff has developed a method for analysis of sludges. This analysis usually gives the answer as to the origin of the sludge. If you have a sludge problem, send a sample of the sludge with pertinent information to the Ansul Research Laboratory through your Ansul wholesaler. An analysis report will be made for you without charge.

*REG. U. S. PAT. OFF.

LIQUID Sulfur Dioxide BY ANSUL*

LIQUID Methyl Chloride BY ANSUL*

ANSUL REFRIGERANTS ARE AVAILABLE AT LEADING WHOLESALERS EVERYWHERE

ANSUL CHEMICAL COMPANY

REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22" AND "FREON-113"

McQUAY DUAL PURPOSE UNIT COOLER

Here's a unit to match any cooling specification

DESIGNED to maintain precise temperature control at any point in the 0° - 37° F. range, the McQuay dual purpose unit cooler has built-in flexibility to match your cooling specifications. Rugged construction plus sound engineering assure dependable operation in all refrigeration applications.

Heart of the unit is the famous McQuay Ripple Fin Coil with its rippled fins and rippled tubes. Hydraulic expansion locks tubes in wide spun fin collars for permanent metal-to-metal contact. Fin construction means high heat transfer efficiency . . . extra coil strength. Unit features include three-way air deflection, slotted hangers for easy installation and water defrosting.

The advantages of water defrosting are now brought in the McQuay Unit Cooler, to all installations from the 0° to 10° range up to the 30° to 37° range where the removal of odors is a problem. Washing of the coil during periodic or daily defrosting provides positive action in elimination of odors that accumulate in the cooling or chill room. See your refrigeration wholesaler now or write McQuay, Inc., 1643 Broadway Street Northeast, Minneapolis 13, Minnesota. Representatives in principal cities.

McQuay

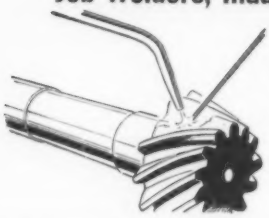
MAKE THE SEASONS COME TO YOU

EVERY PHASE OF AIR CONDITIONING

There's a PUROX Outfit for every type of work

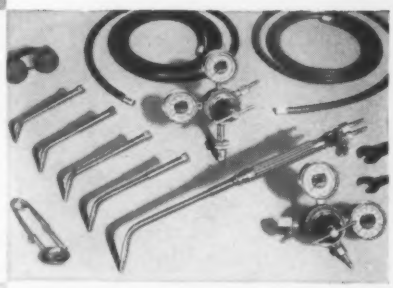
. . . . here's 3 that are typical

Job Welders, Industrial Maintenance Departments

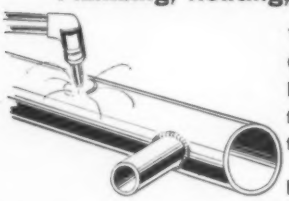


General Welding such as repairing broken machinery by fusion welding and bronze-welding. Re-building gear teeth. Hard-surfacing wearing parts.

No. 35 Welding Outfit $91.20

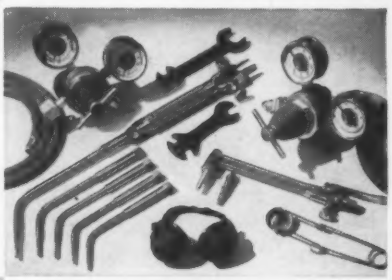


Plumbing, Heating, and Air-Conditioning Contractors

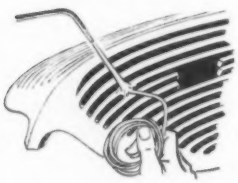


Welding pipe. Heating pipe for wrinkle-bending. Cutting pipe to length or cutting holes to insert branch lines. Soldering sweat-type copper fittings. Handles all welding and also cutting up to 4 in. thick.

No. 35 Combination Outfit $115.20

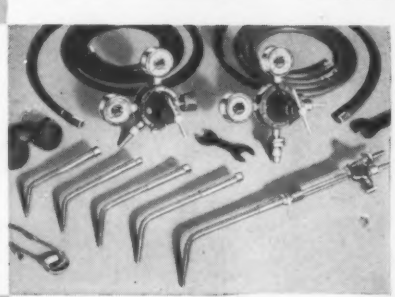


Garages, Truckers, Fleet-Owners, Auto Body Shops



Welding fenders. Bronze-welding cracked cylinder blocks and broken or worn parts. Heating frames for straightening. Repairing radiators and white metal grilles.

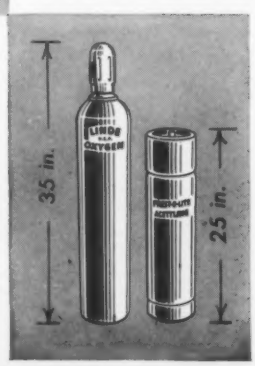
No. 34 Welding Outfit $73.20



New Small-Size Cylinders — No Monthly Rent

Linde oxygen and Prest-O-Lite acetylene are now available from Linde Distributors in convenient small-size cylinders—oxygen cylinder, Style Q, 80 cu. ft.*; acetylene cylinder, Style WQ, 60 cu. ft. New plan assures cylinders when you need them without demurrage charges.

*In some areas, Style XL, 70 cu. ft.



Purox Apparatus is Stocked by Linde Jobbers Everywhere

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

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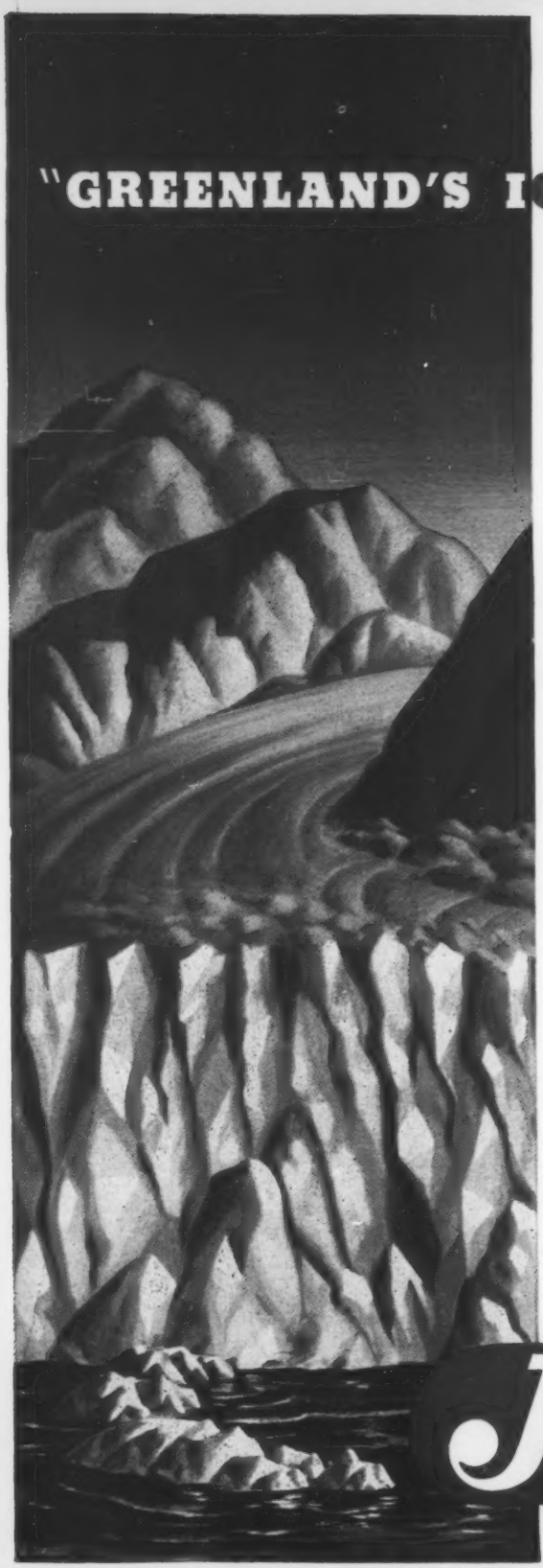
In Canada: DOMINION OXYGEN COMPANY, LIMITED, TORONTO

"Linde," "Prest-O-Lite" and "Purox" are trade-marks of Union Carbide and Carbon Corporation or its Units.

"GREENLAND'S ICY MOUNTAINS"



Prodigal Nature has provided Greenland with an unbroken ice-cap glacier more than 1000 feet thick. The icebergs loosed by its fiords on the North Atlantic would meet the world's refrigerating needs . . . if they could be practically utilized.

As it is, artificial refrigeration must be used. If the openings of refrigerated spaces are not properly sealed, contents are jeopardized and operating costs mount. For nearly half a century, Jamison Cold Storage Doors have satisfactorily solved this problem on thousands of efficient, economically operated installations throughout the civilized world.

The Jamison standard line . . . Jamison, Stevenson, Victor, and NoEqual Doors and related products . . . embraces a wide range of models tailored to most of the requirements of the refrigeration industry. Doors of special design and construction will be built on order. For full information about Jamison Doors for your specific needs . . . and address of nearest branch . . . write Jamison Cold Storage Door Company, Hagerstown, Maryland.

JAMISON
COLD STORAGE DOORS

Branches in Principal Cities, Coast to Coast

Not a CUP in a CARLOAD!

Moisture Content of "FREON" Now Less Than 10 Parts per Million

Carload shipment of 15 one-ton drums of "Freon-12" contains less than a cupful of moisture!

The sensational dryness of "Freon" refrigerants—now less than 10 parts of moisture in a million parts of "Freon-12"—is the result of extensive laboratory research. To produce these drier refrigerants, new equipment was designed and installed in the plants where they are made.

The need for a virtually anhydrous refrigerant stemmed from the increasing popularity of frozen foods. New, compact household quick-freezers and locker plant refrigerating equipment, designed to operate at lower temperatures than ever before, were needed to protect these frozen foods.

But since moisture in a refrigerant may freeze in the valves of low-temperature equipment, it was imperative that refrigerant moisture content be reduced to the absolute minimum. So now that "Freon" refrigerants contain practically no moisture . . . modern, compact, low-temperature quick-freezers, lockers and refrigerants are entirely practical and function safely, efficiently and economically.

Because "Freon" refrigerants *are* as dry and as pure as scientific methods of production can make them, they are ideal for all types of commercial, industrial and household applications. That is why refrigerating engineers everywhere heartily endorse the use of equipment designed to utilize "Freon." Kinetic Chemicals, Inc., Tenth and Market Streets. Wilmington 98, Delaware.

OUTSTANDING FEATURES OF "FREON" SAFE REFRIGERANTS

1. **Freedom from moisture . . . now less than 10 parts per million.**
2. **Narrow boiling point range—confined within limits of ½°C.**
3. **Less than 2% of air in vapor phase.**
4. **Freedom from acids. There are none in "Freon".**
5. **Freedom from high and low boiling products.**
6. **Non-toxic . . . non-flammable . . . non-explosive.**

KINETIC

FREON

REG. U. S. PAT. OFF.

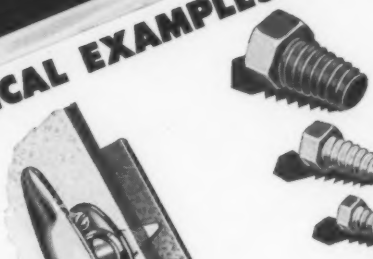
safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS

Marlo

MEANS MINIMUM MAINTENANCE ...easy-to-service

TYPICAL EXAMPLES: (on all air units)



1 LATCH-TYPE HANDLE for easy inspection. Just a quarter-turn of the handle—the roomy, air-tight and watertight panels come off!

2 SELF-TAPPING SCREWS save fumbling with nuts. To dismantle, just loosen the cadmium plated, hardened screws. Re-assembly is just as simple.

3 LOCKSEAL —sponge rubber stripping in metal channels —completely seals all access panels from air, water or brine.

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You get more for your money from

MARLO HEAT TRANSFER EQUIPMENT

Ball-Bonded Blast Coils – Cooling and Heating • Air Conditioning and Refrigeration Apparatus • Industrial Blower Units • Unit Coolers • Evaporative Condensers and Coolers • Low-Temperature Apparatus • Cooling Towers

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MARLO COIL CO. • ST. LOUIS 10, MO.

you

will save money
time
trouble

ALCO THERMO-LIMIT
the valve for all jobs

- Separate Superheat Control
- Separate Pressure Limiting
- Easy-to-change Pressure Limit
- Liquid Charged—apply in any position, any temperature
- Quick Capacity Change

Set it and forget it!

ALCO

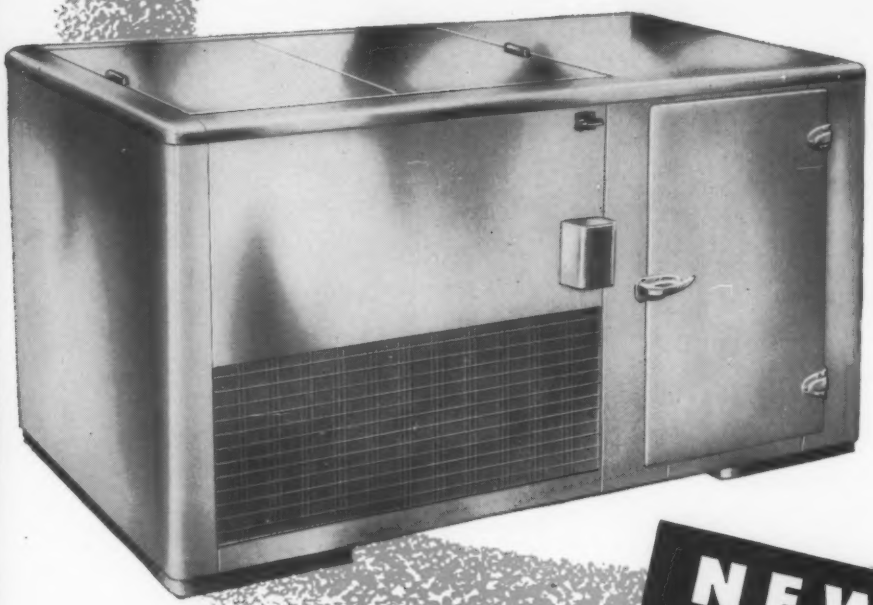
ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

NEW LOW PRICE

Only $385 f.o.b. factory



Five Sided Refrigerated Pure Virgin Copper Tank. Refrigerant lines soldered on five sides to copper tank and concealed in walls.

NEW

THE IDEAL UNIT FOR

RESTAURANTS
ROADSIDE STANDS
DAIRY STORES
RECREATION CENTERS
HOTELS
TAVERNS
FISH MARKETS
FACTORY CAFETERIAS
HOSPITALS
SODA FOUNTAINS
BEVERAGE BOTTLERS
BOWLING ALLEYS
MEAT MARKETS
DELICATESSENS
CANDY STORES
DRUG STORES

DEALERS

Ask your distributor for this great profit-maker—or write us for his name.

Distributed in many areas by G.E. Supply Corp.

DISTRIBUTORS

Write for details of franchise for open territory.

The cost per cubic foot of usable refrigeration space in this size range is probably the lowest in the history of commercial refrigeration.

Artkraft BEV-FOOD

COMBINATION FOOD AND BEVERAGE COOLER

This self-contained "plug-in" unit engineered for outstanding performance in any type of store or institution is A MUST wherever foods or beverages are served. Can be used as both beverage cooler and food refrigerator. Has compartment for both wet or dry chilling of bottled and canned beverages. BEV-FOOD is the ONLY COMBINATION COOLER THAT CAN BE OPERATED WET OR DRY. Can be used entirely for dry refrigeration from bottom to top of each compartment. Top opening prevents spill-out of cold.

IMPORTANT!

DEALERS NOTE: This cooler is not just a beverage cooler but can be used more successfully than any other cooler in the preservation of

Hamburger—at normal temperatures for 30 days.
Sweetbreads—ten days without spoilage.
Steaks and chops—almost indefinitely.
Fish—lake and deep sea—better than ice.
Fowl—almost indefinitely.
Cream pies—For a week or more.

THERE IS NO INTERMINGLING OF FOOD ODORS

The Artkraft Manufacturing Corp.

Quality Products for a Quarter of a Century

300 KIRBY ST., LIMA, OHIO, U.S.A.

THIS COUPON FOR YOUR CONVENIENCE

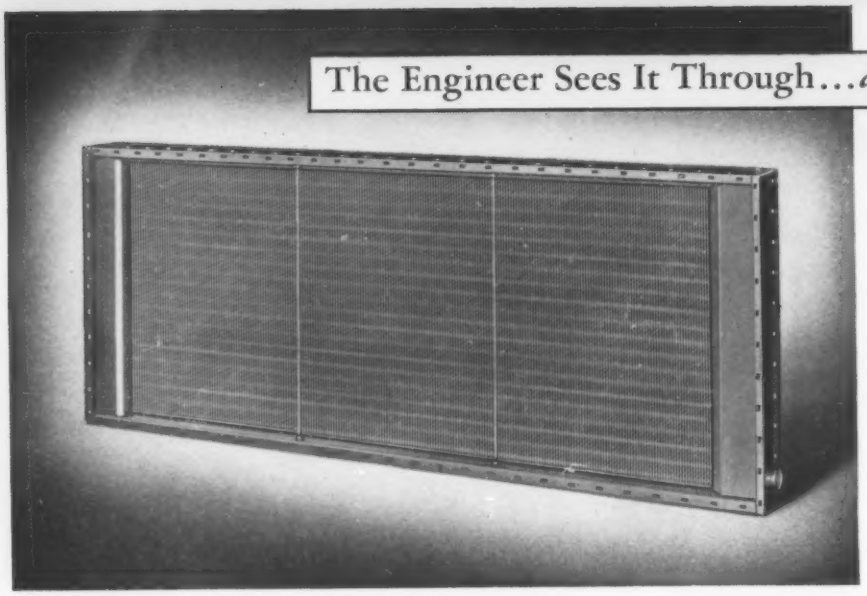
THE ARTKRAFT MANUFACTURING CORPORATION
300 KIBBY ST., LIMA, OHIO, U.S.A.

- ☐ Please send more details on BEV-FOOD.
- ☐ Please send the name of the BEV-FOOD distributor in this territory.
- ☐ Please send details of distributors' franchise.

NAME.....

FIRM.....

CITY.....



Coils . . . Designed for Every Requirement

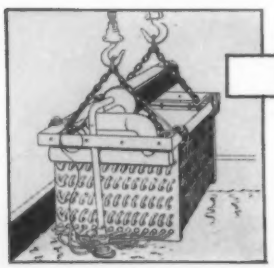
The complete line of usAIRco coils includes steam coils for heating, standard and non-freeze type, water coils for heating and cooling and direct expansion coils. These coils are properly designed, skillfully manufactured, and expertly engineered to the job requirement.

The usAIRco engineer follows through from design board through the installation. He specifies that coils are constructed for heavy service and dependability—he sees that you get a mechanically efficient tool. And most important, the usAIRco engineer helps you put the coil to work on your specific job.

Get acquainted with helpful usAIRco engineers on your next air conditioning job.

UNITED STATES AIR CONDITIONING CORPORATION
Minneapolis 14, Minnesota

Factory Representatives in Principal Cities



TESTED.....AND PROVED

Every coil takes a final plunge before going off to work for you. High pressure is applied to show up weak spots in construction. This test, and others, assure dependable performance on the job.

Plus

Cooperative Engineering Counsel

Available to your air conditioning, heating or ventilating problems is the advice and counsel of the engineering staff of usAIRco. With a background of nearly twenty-five years, it is one of the most experienced in the industry. We invite you to use it freely and fully.

"...and it weighs so much less!"

Important to the manufacturer of cabinet and other types of self-contained refrigeration units is the light weight of the new Mills Direct Drive Compressor. It makes possible lighter support structures, easier handling, and reduced transportation costs.

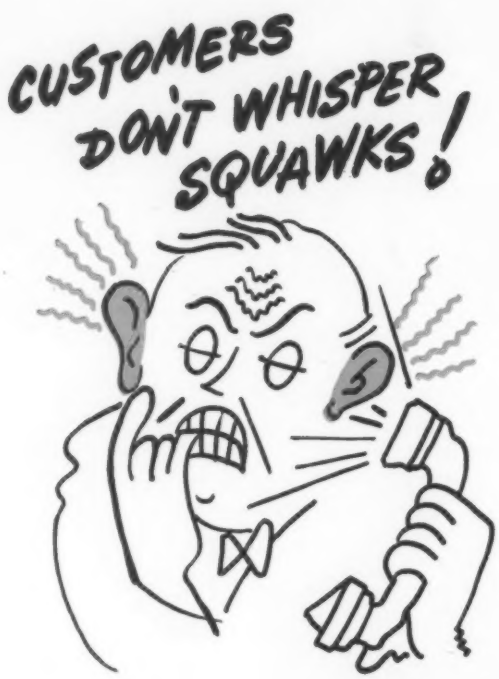
This saving in weight is possible partially through a reduction in size and the elimination of drive wheels and belts. Yet there has been no sacrifice in accessibility and ease of service and repair in the field. Through a number of remarkable engineering developments, the Mills Direct Drive Condensing Unit is more efficient than either hermetic or conventional belt-driven compressors.

MILLS
Direct Drive
COMPRESSOR

First post-war addition to a distinguished family of air- and water-cooled condensing units

MILLS INDUSTRIES, INCORPORATED • 4100 FULLERTON AVENUE • CHICAGO 39, ILLINOIS

THOUGHTS FOR MERCHANDISERS

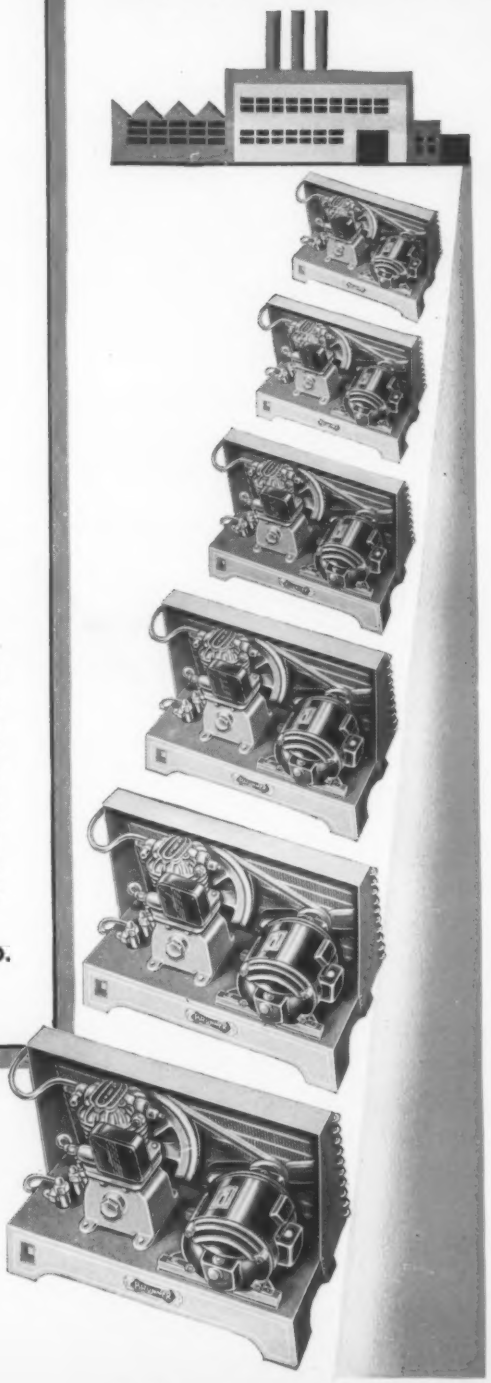


A complaining customer can be very expensive. Bad news travels fast. Good merchandising dictates the need for doing what you can to avoid the loss or displeasure of a single customer. A sound idea for protecting your reputation for quality products is to equip with dependable, long life, low maintenance condensing units. And when it comes to refrigeration condensing units no name is more highly regarded than "BRUNNER." One good customer is worth more to you than the cost of any condensing unit so why settle for anything less than the best?

BRUNNER MANUFACTURING CO.
Utica 1, New York, U. S. A.

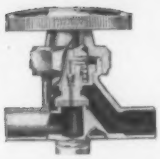
BRUNNER
SINCE 1906

REFRIGERATION
helps you serve better

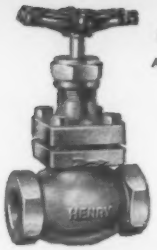


AIR AND WATER COOLED MODELS
¼ HP. TO 25 HP.

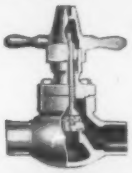
BRUNNER
SINCE 1906



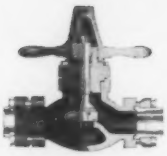
PACKLESS VALVE
Ports-in-line. With or without balanced-action



AMMONIA VALVE
Bolted Bonnet—screw or flanged connections. Also with screwed bonnet



WING CAP VALVE
Non-ferrous



WING CAP VALVE
Semi-steel—with adapters

STRAINER
Angle type with patented distortion-proof flange

"Y" STRAINER
Welded steel with solder or F.P.T. connections

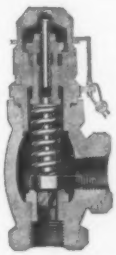
you pay—

no premium for..

the extra advantages found in

Henry products

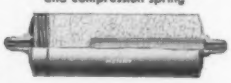
or for the extra satisfaction that follows their use



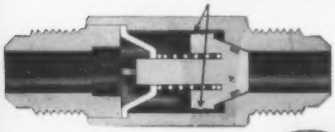
RELIEF VALVES
Left: Ammonia Relief Valve
Below: Snap Action Relief Valve (Brass)

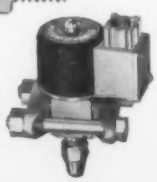
DRIER
Cartridge type with dispersion tube

DRIER
Brass shell with dispersion tube and compression spring

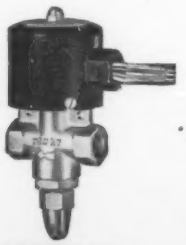


CHECK VALVE
New straight through flow (Piston Guides not shown in order to illustrate flow passage)





SOLENOID VALVE
10 tons Ammonia with come-apart construction and hardened steel renewable seat.



SOLENOID VALVE
10 ton "Freon" brass body with come-apart construction

... write for these catalogs:

No. 97 Packless and packed valves, strainers, driers, and other accessories for air conditioning and refrigeration and industrial uses.

No. 65 Ammonia valves and accessories including check valves, relief valves, three-way valves, scale traps and liquid gauge sets, flange unions and nut unions.

No. 68 Drop forged and cold rolled steel fittings.

Solenoid Valve Booklet.

HENRY VALVE COMPANY

Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications

3260 W. GRAND AVENUE • CHICAGO 51, ILLINOIS

HENRY VALVE CO. CONTROLLING FLOW SINCE 1914

Cable: HEVALCO CHICAGO 6

Sound Foundation.

THREE BASIC TYPE "T" MODELS . . . The T-110 shown at far left has a rugged pressed steel base and is cushioned in generous rubber pads. Shown next to this, without a base, is the T-123. Both of these models are provided with Air-Stream enclosed fan cooling and can be used for general duty up to 1/30th horsepower. For fan duty they handle 1/25th horsepower loads. To the right of the T-123 is the T-121 built with exposed cooling fins. It provides up to 1/25th horsepower for fan applications where airflow is directly over Micromotor.

FOR ELECTRICALLY POWERED PRODUCTS

TYPE "T" A. C.

Redmond MICROMOTORS

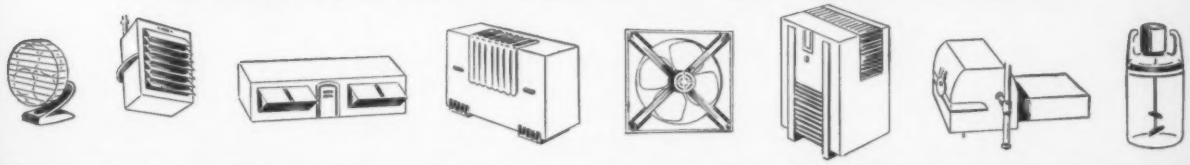
TAKE a good look at this sturdy 1/25th horsepower job. Don't miss that husky frame. Check the precision construction of its famous Flush-Weld rotor. Measure off the solid footing provided by large bearings spaced 3½" overall.

You'll find this fine Redmond Micromotor retaining accurate alignment throughout thousands of hours of steady service. You'll find it well suited for tough use on full rated loads.

Here is sound engineering. Redmond Type "T" Micromotors are products of more than 20 years of specialized experience in the building of 20,000,000 low range fractional horsepower motors.

Build your motor-powered products on a sound foundation. If it's a twenty-fifth horsepower you need, check the fine Type "T" Micromotors. Other Redmond A.C. Micromotors are made in sizes from 1/150th up to 1/15th horsepower.

Illustrated below are just a few of the many applications for which Type "T" Micromotors are ideally suited:



Air Circulators • Unit Heaters • Window Type Ventilators • Air Conditioners • Wall Type Ventilators • Space Heaters • Gas Burners • Churns

Redmond COMPANY, INC.

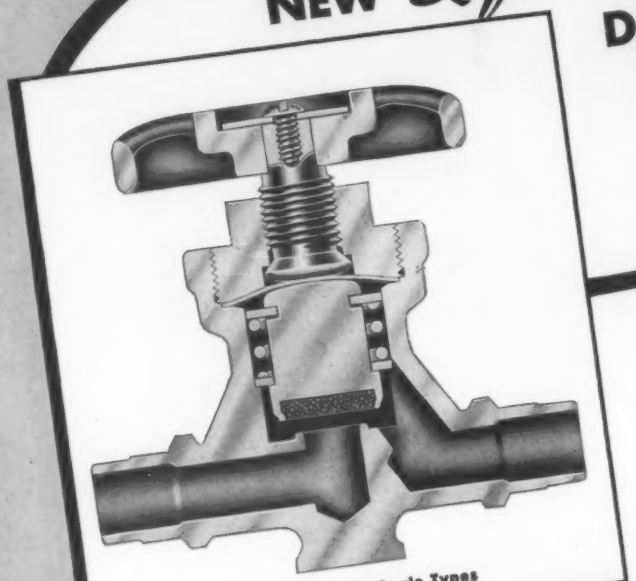
Main Offices

OWOSSO, MICHIGAN, U. S. A.

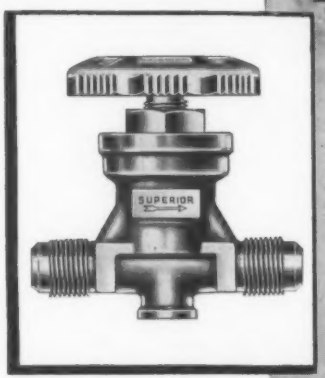
REDMOND

Redmond facilities include 2500 employees and more than 5 acres of floor area.

NEW *Life-Time* DIAPHRAGM PACKLESS VALVES



Line, Branch and Angle Types



10 FEATURES OF *SUPERIORITY*—Check them!

1—Rugged—pleasing appearance—symmetrical design.

2—Wrench pads for individually tightening flare connection.

3—Unique solder connections permit soft or silver soldering—*without removing internal assembly.*

4—One-piece, plated lower stem.

5—*Controlled stem travel* assures "Life-time" diaphragm performance.

6—*Controlled seating* results in "Life-time" operation.

7—Large bearing surfaces—polished stem heads, and scientific lubrication assure "Life-time" performance of upper stem and diaphragm.

8—Unrestricted flow—ease of operation.

9—Operates under normal pressure, with flow in opposite direction.

10—No special tools required for disassembly or reassembly.

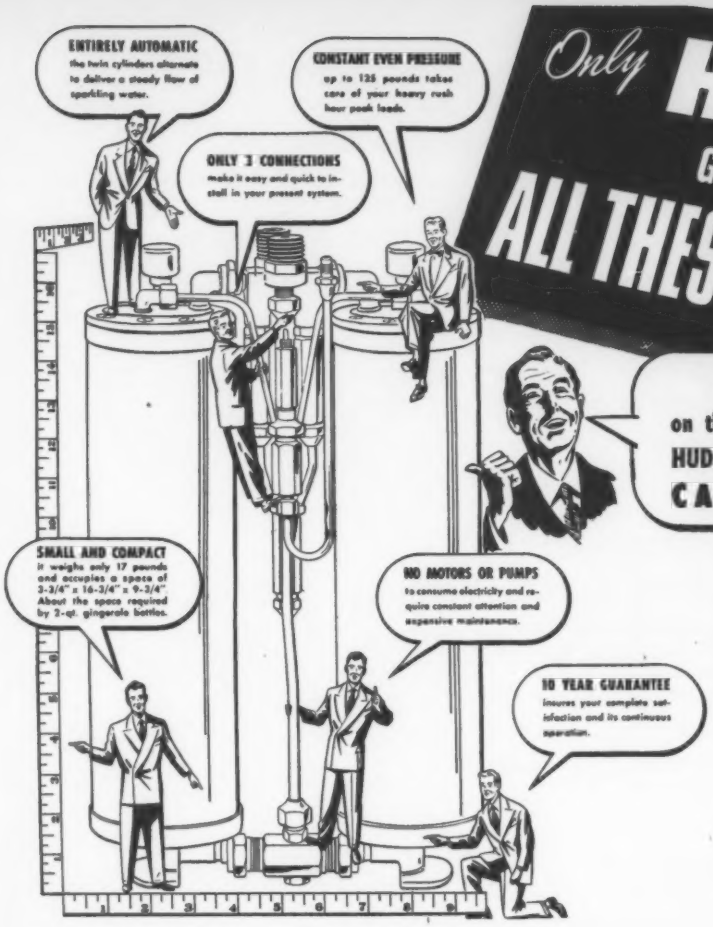
Ask Your Jobber About "Life-time" Packless Valves
They're SUPERIOR!

140

Superior Valve and Fittings Co.

1509 WEST LIBERTY AVE., PITTSBURGH 26, PENNA.

OFFICES IN PRINCIPAL CITIES · STOCKS: CHICAGO (6) · LOS ANGELES (15) · JOBBERS EVERYWHERE


ENTIRELY AUTOMATIC
the twin cylinders alternate to deliver a steady flow of sparkling water.
CONSTANT EVEN PRESSURE
up to 125 pounds takes care of your heavy rush hour peak loads.
ONLY 3 CONNECTIONS
make it easy and quick to install in your present system.
SMALL AND COMPACT
it weighs only 17 pounds and occupies a space of 3-3/4" x 16-3/4" x 9-3/4". About the space required by 2-qt. gingerale bottles.
NO MOTORS OR PUMPS
to consume electricity and require constant attention and expensive maintenance.
10 YEAR GUARANTEE
insures your complete satisfaction and its continuous operation.

Only HUDSON GIVES YOU ALL THESE FEATURES

CASH IN
on the growing demand for
HUDSON Constant Pressure
CARBONATORS

. . . and Only HUDSON DARES TO GUARANTEE

for **10** *YEARS*

This ten year guarantee could only be made on a product that is mechanically perfect, dependable and trouble free.

Get Your Share in the Trend for MODERNIZATION

Hudson *constant pressure* Carbonators are easy to sell, simple to install and are guaranteed for ten years.

Imitated, but never equaled, Hudson *constant pressure* Carbonators are the *only motorless carbonators that maintain a constant pressure on the draft arm* up to 125 pounds, regardless of incoming water pressure.

INSTALLATION: The entire unit can be installed at any convenient place in your fountain or bar. Three simple connections are all that are required.

OPERATION: Continuous and entirely automatic. Requires no attention or repairs. The reciprocating cylinders alternate to maintain an even, constant flow of clear sparkling soda water.

COMPACT: The Hudson *constant pressure* Carbonator is 3-3/4" x 16-3/4" x 9-3/4" and takes up no more space than two quart ginger ale bottles.

CAPACITY: 25 gallons or more per hour with no interruption of service. A constant flow is assured even during the peak loads of your "rush hour" periods.

PRESSURE: Constant and evenly maintained (up to 125 pounds at draft arm) regardless of the pressure in your city water lines. There is no fluctuation of pressure or CO_2 gas content. No variance in quality to your customers.

SOFT DRINK DISPENSERS operate with added efficiency when the Hudson *Constant Pressure* carbonator is used and simultaneously operate all other draft arms.

NOTE: Deliveries of Hudson *constant pressure* Carbonators are being made immediately from stock. Write, on your own letterhead, for further details. Please indicate the territory you now cover and the products you are handling.

HUDSON PRODUCTS CO. Inc.

4400 ST. AUBIN AVE. Dept. R
DETROIT 7, MICH.

EXPORT DIVISION • 2111 Woodward Avenue, Detroit 1, Michigan, Cable: FORACO

AMCOIL
ALL THE WAY!

SENSAIRE • LATENAIRE

ONE LINE OF AIR CONDITIONERS FOR EVERY APPLICATION

Cash in on the Amcoil Sensaire and the Amcoil Latenaire Conditioners—the *complete* line of air-conditioners. Fast Moving—Nationally Advertised—Remote and Self-contained Types—Immediate Deliveries—PROFITS FOR YOU! Act Now!

DEALERS DISTRIBUTORS WHOLESALERS AMCOIL means profits for you!

AMCOIL LATENAIRE CONDITIONER

The answer to human comfort in warm humid climates—thrives on humidity! Patented revolutionary operating principle literally wrings moisture out of the air! Provides cool, healthfully conditioned air without that clammy ice-box feeling. Adjusts automatically to varying temperature and humidity conditions. Fully equipped, remote and self-contained models. Attractive streamlined cabinets make a handsome addition to any room.

Latenaire Conditioner self-contained Model SCL-250. Pat. No. 2,405,812.

AMCOIL SENSAIRE CONDITIONER

The answer to human comfort in warm dry climates. Specifically designed for comfortable air-conditioning wherever sensible heat loads predominate. Efficient, quiet operation; in both remote and self-contained types. Fully equipped. Beautifully streamlined cabinets, finished in attractive two-tone brown, crackle baked enamel.

Amcoil Extended Surface Fin Increases Capacities. Pat. No. 2,402,262.

Amcoil
AIR CONDITIONING · REFRIGERATION
AMERICAN COILS CO., NEWARK, N. J.

JUST OFF THE PRESS

Send for your copy of the new AMCOIL Air-conditioning catalog. Attractively printed in color, it describes and illustrates the complete line. Also included are complete engineering and selection tables along with a handy, new heat load calculator chart. Write today!

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Chicago: 215 W. Ontario Street, Superior 4859

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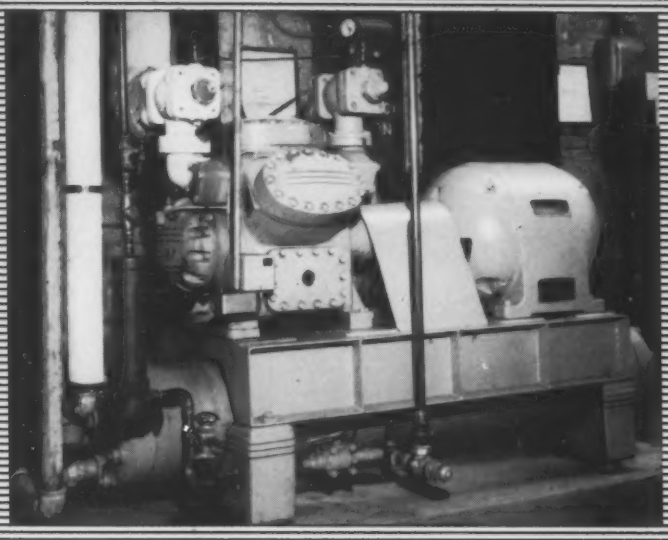


GET THIS FREE COMPRESSOR BOOK. The new book, "Carrier Refrigerating Compressors and Condensing Units," is filled with data on Carrier refrigerating units. You'll find it handy for quick reference. Write for your copy.

this new compressor has the build for tough going

The rugged new Carrier 5H60 compressor is designed and built to deliver maximum refrigeration at minimum cost—day in and day out. That's important where food stocks demand constant protection. Interruption-free service makes the 5H60 a natural choice for food processing, packing, and storage plants. The 5H60 is suited especially to bigger locker plants.

Every part is selected for long wear, quiet operation. Lubrication is force-feed. Non-flexing, vapor-cushioned ring-plate valves reduce noise. Bellows-type metallic shaft seal is continuously immersed in oil. *Built-in* capacity control provides five capacity stages, from 100 per cent down to 33. Unloaded starting makes it possible to use normal torque motors. Special control valve permits "compensated" control by temperature, dewpoint or the temperature of fluid being cooled.

Like every Carrier air conditioning and refrigerating unit, the new 5H60 offers the plus advantages of Carrier leadership and world-wide experience. That's your assurance of long, dependable, economical refrigerating service. Carrier Corporation, Syracuse, N. Y.

Carrier

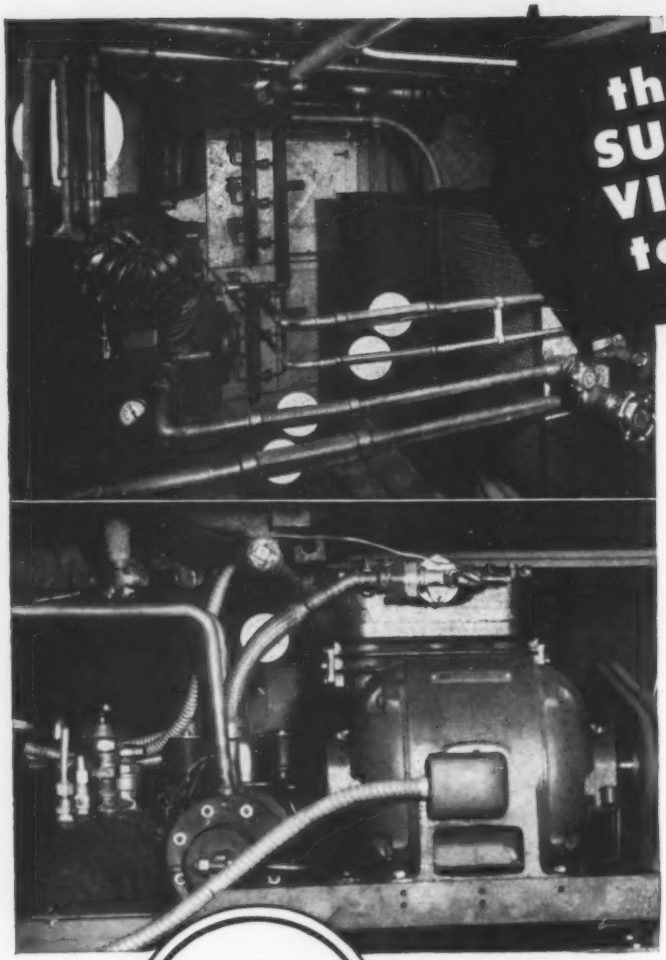
air conditioning

refrigeration

industrial heating

... for high and low frequency

VIBRATION DAMPING



there's a REX SUPER-SERVICE VIBRA-SORBER to fit the Job!

Absorbing vibration near its source with Rex Super-Service Vibra-Sorbers is the *sure* way to prevent the damage vibration can cause to pipe lines and connected equipment.

High or low frequency vibrations are effectively handled by the proper Rex Vibra-Sorbers. Sizes and types are available to meet a wide range of temperature, pressure and corrosion conditions. The "Super-Service" prefix denotes proven dependability in tough operating conditions . . . Made possible by CMH engineers' thorough knowledge of the Science of FLEXONICS.*

Write today for details on Rex Super-Service Vibra-Sorbers to eliminate vibration damage and dampen noise in your plant.

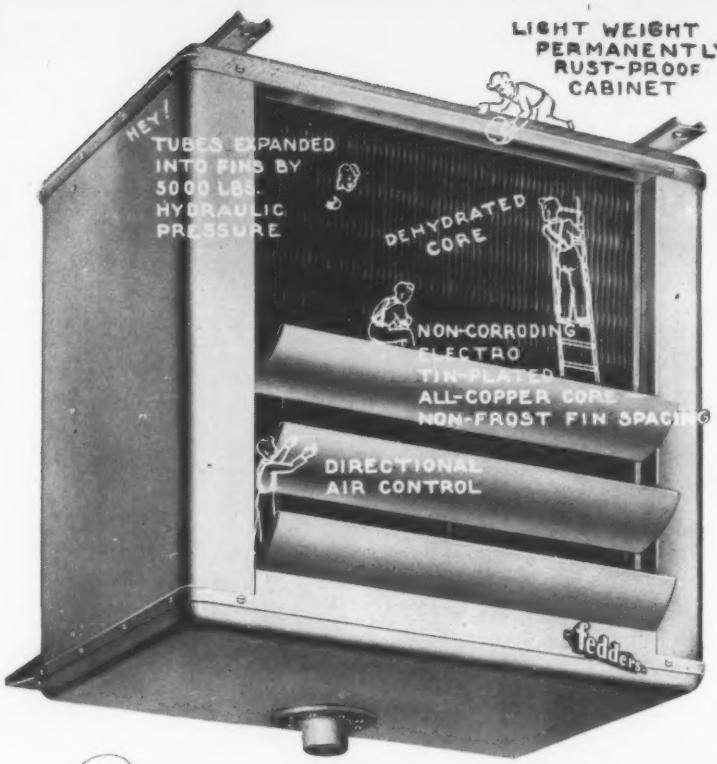
FLEXONICS at work!

*the science of FLEXONICS . . . "the controlled bending of thin metals for use under varying conditions of temperature, pressure, vibration and corrosion" . . . is exemplified in the basic products of Chicago Metal Hose Corporation.

"FLEXON" *identifies C. M. H. products, which have served industry for more than 45 years.*

CMH CHICAGO METAL HOSE CORPORATION

Maywood, Illinois • Plants: Maywood and Elgin, Illinois



Select FEDDERS Unit Coolers

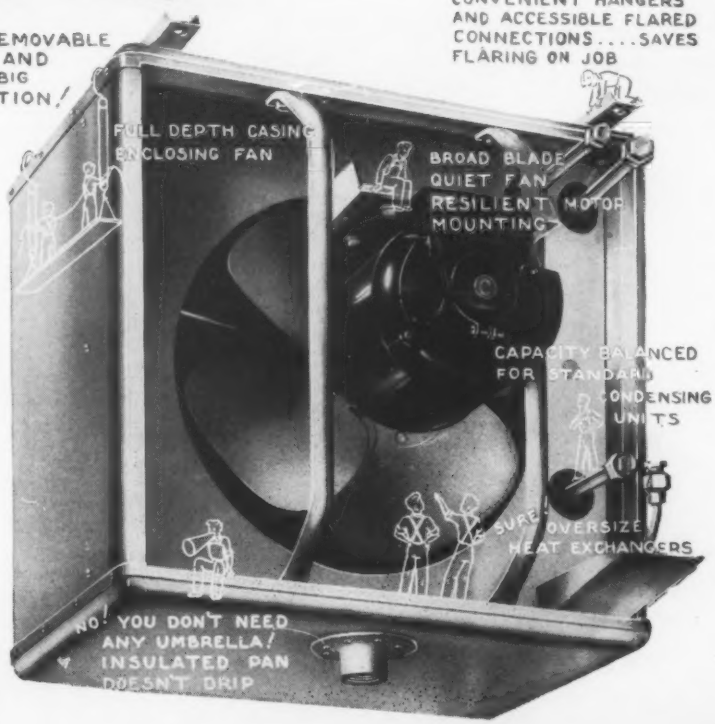
ON THEIR

PLUS FEATURES

LOW AIR VELOCITY SAVES SHRINKAGE

BOTTOM PAN REMOVABLE FOR CLEANING, AND LOOK AT THAT BIG DRAIN CONNECTION!

CONVENIENT HANGERS AND ACCESSIBLE FLARED CONNECTIONS....SAVES FLARING ON JOB


FULL DEPTH CASING ENCLOSING FAN
BROAD BLADE QUIET FAN
RESILIENT MOTOR MOUNTING
CAPACITY BALANCED FOR STANDARD CONDENSING UNITS
SURE! OVERSIZE HEAT EXCHANGERS
NO! YOU DON'T NEED ANY UMBRELLA! INSULATED PAN DOESN'T DRIP

MEET ALL UNDERWRITERS' REQUIREMENTS

SUSPENDED AND PANEL TYPES

COMPLETE RANGE OF SIZES

NEW LOW PRICES

FEDDERS certified RATINGS

FEDDERS QUIGAN

CORPORATION • BUFFALO 7, NEW YORK

IN AIR CONDITIONING OR REFRIGERATION

CURTIS

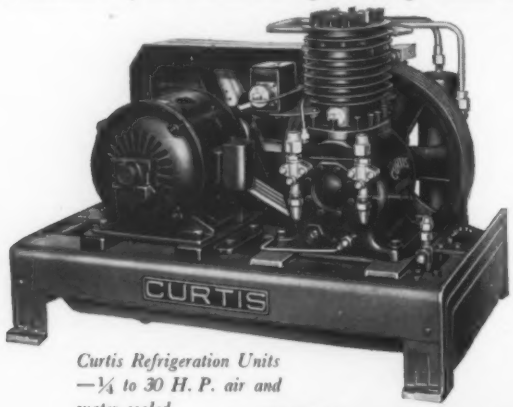
PRECISION ENGINEERING

Assures Highest Efficiency, Economy, Long Life

Curtis Packaged Air Conditioners offer these advantages:

- Compact, attractive units—3, 5, 7½, 10 and 15 tons
- One day installation
- Cool, dehumidify, circulate and filter air
- Easily adapted for heating
- Quiet, dependable operation
- Exceptionally long, trouble-free life

Write to Curtis for full information on Curtis equipment for almost any air conditioning or refrigeration need.



Curtis Refrigeration Units —¼ to 30 H. P. air and water cooled.

Curtis Packaged Air Conditioners — 3, 5, 7½, 10, 15 tons.

R-495

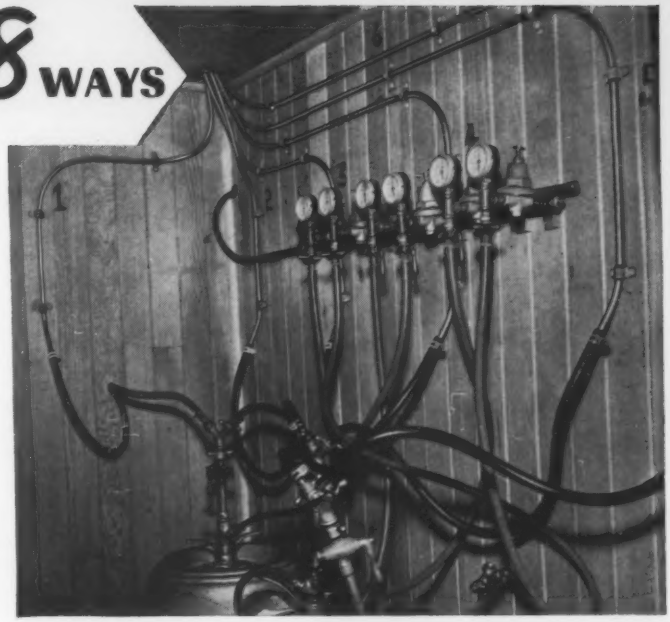
93 Years of Successful Manufacturing

CURTIS REFRIGERATING MACHINE DIVISION

of CURTIS MANUFACTURING COMPANY

1915 Kienlen Avenue St. Louis 20, Missouri

THESE 6 LINES LEAD 8 WAYS



No trick! No magic! Your next installation can be just as outstanding as this one.

All you need is the same kind of leader lines. ***They're double-wall tubes of pure Nickel, made by the famous Bundyweld process.***

And they're *better* tubes for leader line and beer coil installations . . .

BECAUSE — ***Nickel protects!***

1) From first glass to last drop, beer drawn through Nickel lines and coils is pure and clear and sweet.

BECAUSE — ***Nickel is sturdy, strong!***

2) Nickel tubing resists denting . . . collapsing . . . bursting. Resists damage by ice-picks and bats. Coils don't sag; even long leaders need few supports.

BECAUSE — ***Cools fast!***

3) Nickel's strength and toughness lets you use thinner tubing. This means quicker cooling . . . cooling at *lower* cost.

BECAUSE — ***Resists corrosion!***

4) You probably know of Nickel's well-earned reputation as a highly corrosion-resistant metal. In beer and beverage service, it resists pitting and other forms of corrosion.

BECAUSE — ***Cleans easily!***

5) The surfaces of Bundyweld tubing made of Nickel are smooth inside and outside. It is easy to keep Nickel fresh and sanitary because it responds readily to all approved cleaning methods.

BECAUSE — ***Easy forming—easy installing!***

6) Nickel tubing made by Bundyweld can be coiled more easily than other high-strength materials, and formed to any bend wanted for running leader lines through conduits.

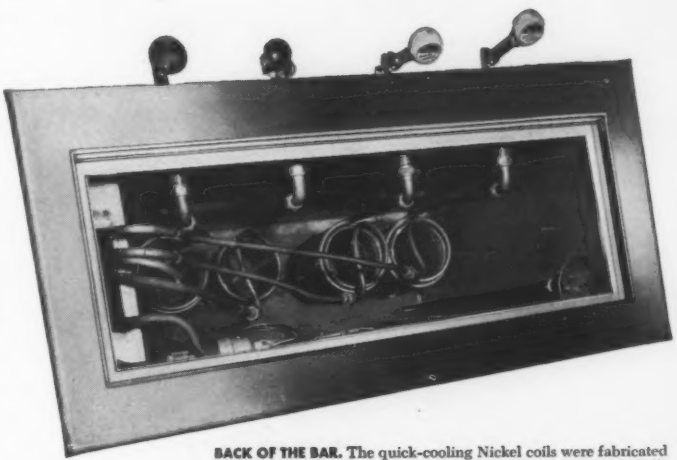
BECAUSE — ***Low cost!***

7) Taste-protecting, corrosion-resisting Nickel beer coils and leader lines compare favorably in price with other types of tubing. Get quotations and see!

BECAUSE — ***You can get Nickel tubing now!***

8) Distributors throughout the United States and Canada have Nickel tubing for you in lengths up to 100 feet . . . in standard diameters to ⅝" OD.

NEAT JOB. This view of the pre-cooler room serving the cocktail lounge of Palladium Bowling, Orange, N. J., shows how leader lines of Nickel tubing are directed through conduit to cold chest on floor above.

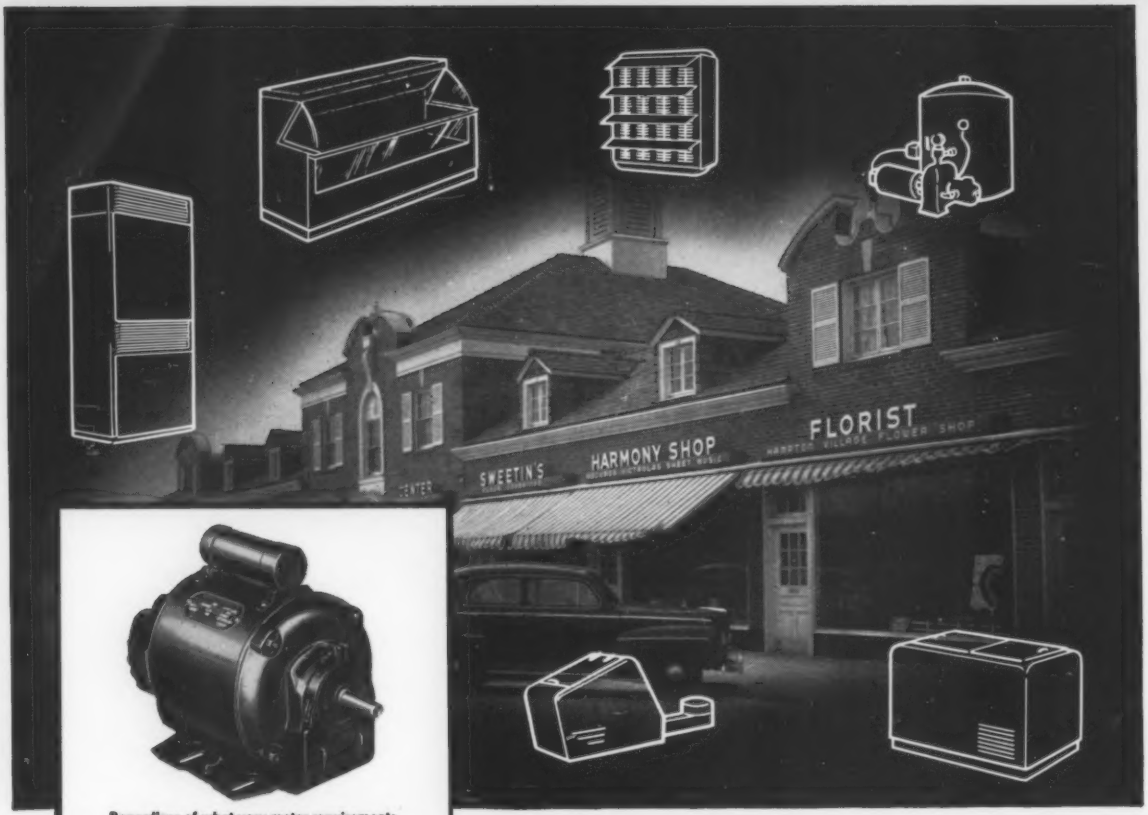


BACK OF THE BAR. The quick-cooling Nickel coils were fabricated by *Beer Utilities Company*, 43 E. 29th St., New York 16, N. Y. Complete bar installation, including cooling equipment, designed and furnished by James J. Gavigan & Co., Inc., 118 E. 27th St., New York 16, N. Y.

Write us for the address of the INCO *Distributor nearest you*

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N.Y.

EMBLEM OF SERVICE INCO TRADE MARK **Nickel**
. . . Your Unseen Friend



Regardless of what your motor requirements may be—small motors . . . large motors . . . Wagner makes them all. The motor illustrated is typical of the Wagner line of single-phase and polyphase motors.

"Your MOST OBEDIENT SERVANT"

. . . the Wagner Fractional Horsepower Motor

Small in size . . . low in price . . . but it does a thousand different jobs in the stores, the shops, homes, schools and farms of America. Wagner fractional horsepower motors furnish the power to operate quick freeze units, compressors, stokers, pumps, and many other motor-driven appliances.

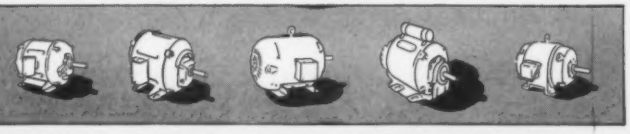
The unfailing dependability of Wagner Fractional Horsepower Motors has made them the first choice of many manufacturers of small machines and appliances. Millions of these motors have been built in the huge Wagner plant, and while they still play "hard to get" they are coming from Wagner's motor assembly lines in ever-increasing quantities to help meet the pent-up demand for these outstanding small motors.

Whether your motor requirement is large or small, Wagner can furnish a motor correctly designed to give you greater continuity of operation. The complete line of Wagner motors covers a wide range of types and sizes for every application. More than half a century of motor building experience assures the reliability of every motor bearing the Wagner name. Users of Wagner motors also profit by our quick, convenient, nationwide service facilities.

Twenty-nine branch offices, located in principal cities, are ready to assist you, without obligation, whenever you have a motor problem. Write for Bulletin MU-185 for information on the complete line of Wagner Quality Motors. Address Wagner Electric Corporation, 6442 Plymouth Avenue, St. Louis 14, Mo.

Consult Wagner Engineers on all Electric Motor Problems

Wagner Electric Corporation
EST. WE 1891



M47-20

• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE PRODUCTS •

LARKIN . . . the leading manufacturer of complete commercial and industrial refrigeration and air conditioning equipment

LONG and productive experience, keeping step with advanced engineering skill and conscience, has made Larkin products recognized leaders in industrial refrigeration and air conditioning. Our manufacturing processes have explored the entire range of possibilities for improvement—and our present roster of products covers every phase of this growingly important field. Origination and patenting of the cross-fin coil is just one example of technical enterprise that has established the Larkin line. Bright and imaginative finishes on what might otherwise be drab and purely utilitarian equipment is another advance which illustrates our completeness in design and production. For variety . . . versatility . . . and performance . . . look to Larkin.

LARKIN

519 MEMORIAL DRIVE·S·E·
ATLANTA·GEORGIA

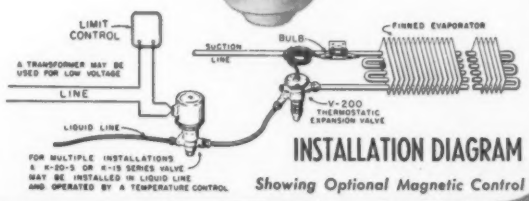
THE WATCHDOG OF THE NATION'S FOOD SUPPLY

For Efficient Refrigeration Control

New K-20-5 ELECTRO-MAGNETIC VALVE

CHECK THESE FEATURES

- Die-Forged Body
- Hardened Steel Needle
- Corrosion-proof Internal Parts
- Gasketless Construction
- Integral Mounting Feature
- Moisture-proof, high temperature
- Single or Dual Voltage Coils


LIMIT CONTROL
A TRANSFORMER MAY BE USED FOR LOW VOLTAGE
LINE
LIQUID LINE
FOR MULTIPLE INSTALLATIONS A K-20-5 OR K-15 SERIES VALVE MAY BE INSTALLED IN LIQUID LINE AND OPERATED BY A TEMPERATURE CONTROL
SUCTION LINE
BULB
FINNED EVAPORATOR
V-200 THERMOSTATIC EXPANSION VALVE

INSTALLATION DIAGRAM

Showing Optional Magnetic Control

For Freon • Methyl Chloride • Sulphur Dioxide

THIS VALVE is specifically designed for control of refrigerants and may also be used for controlling air, water, gas, light oil, etc. Controls suction lines or hi-pressure liquid lines. Assures tight shut-off for fractional tonnage installations. Bronze and stainless steel internal parts.

FOR COMPLETE SPECIFICATIONS on automatic temperature, pressure and flow controls, write for Catalog, or contact Factory Branch or Refrigeration Wholesaler near you.

GENERAL CONTROLS

801 ALLEN AVENUE GLENDALE 1, CALIF.

FACTORY BRANCHES: PHILADELPHIA • ATLANTA • BOSTON • CHICAGO • DALLAS
KANSAS CITY • NEW YORK • DENVER • DETROIT • CLEVELAND • PITTSBURGH
HOUSTON • SEATTLE • SAN FRANCISCO • DISTRIBUTORS IN PRINCIPAL CITIES

New Orleans OFFERS THE REFRIGERATION INDUSTRIES

MARKETS TRANSPORT RESOURCES

anyway you look at it . . .

MARKETS!

MARKETS . . . *domestic,* the vast Mississippi Valley and the 10 progressive southern states (which contain 23% of the nation's population, yet produce only 3% of all refrigerators manufactured)-- *foreign,* 150,000,000 buy-minded people in Central and South America, Mexico and the Caribbean. New Orleans is situated mid-way between these rich markets—large areas of which are in tropical and even equatorial regions and are eager for air conditioning and refrigeration, and able to pay.

TRANSPORTATION . . . efficiently coordinated facilities: modern, sheltered harbor, 97 ship and barge lines, 8 major air lines, 9 trunk line railroads, well-kept highways, and connected with the 13,000 mile network of inland waterways.

RESOURCES . . . raw material available in abundance. Sheet steel and rolled shapes may be shipped inexpensively by barge from Birmingham, electric motors from Ohio and Illinois. Here too is economical electric power and unlimited supplies of low cost natural gas, permitting the unrestricted use of this fuel in enameling ovens. Foundries in this area gained wide experience during the war and are expert at casting all types of metals in a wide range of sizes and shapes. *Skilled Labor,* more than double the supply in 1940, is intelligent and cooperative. *Friendly Taxation,* local and state, encourages industrial growth.

TRADE FACILITIES . . . unequalled. New Orleans International House and International Trade Mart aid in your buying-and-selling with Latin America and the world. The new Foreign Trade Zone gives you competitive advantages in manufacturing, exporting, and importing. *At your request* industrial representatives from the Association of Commerce or Greater New Orleans, Inc., will call upon you in person.

NEW ORLEANS LEADS THE SOUTH

ALL RETAIL SALES*

New Orleans	$456,327,000.00
Houston	455,157,000.00
Dallas	425,163,000.00
Atlanta	375,257,000.00

EFFECTIVE BUYING INCOME*

New Orleans	$693,694,000.00
Houston	642,974,000.00
Dallas	584,284,000.00
Atlanta	423,332,000.00

NEW ORLEANS EXPORTS (Dollar Value)

1946	$569,100,000.00
1945	395,900,000.00
1944	285,800,000.00

*Sales Management

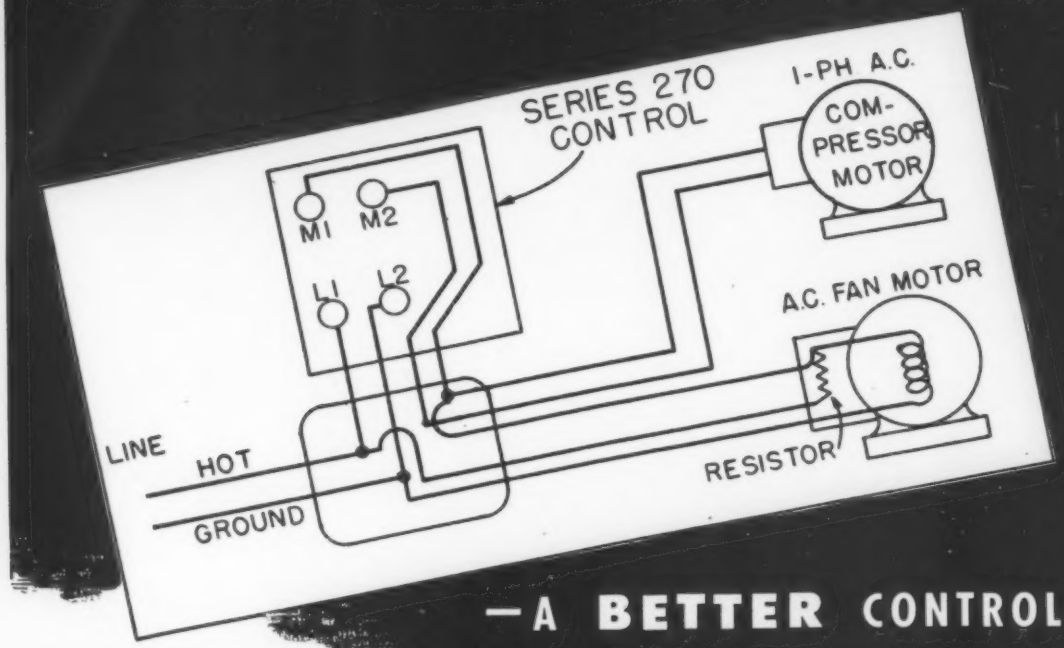
SEND FOR A COPY . . .

of our recently completed study, "The Opportunity for the Manufacture of AIR CONDITIONING & REFRIGERATION EQUIPMENT in the City of New Orleans," giving more detailed information on the profitable possibilities of a New Orleans location. Address:

GREATER NEW ORLEANS, INC., 1024 Maison Blanche Bldg., New Orleans

GREATER NEW ORLEANS

FOR WALK-IN COOLERS, DISPLAY CASES, ETC.



—A BETTER CONTROL!

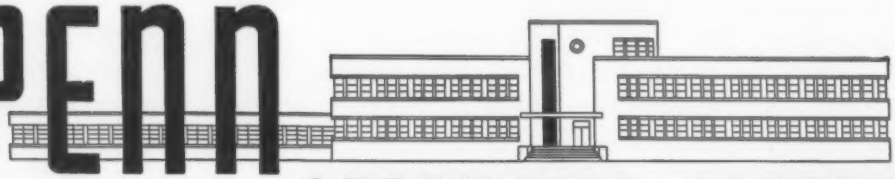
Series 270 and 272 PENN "Single" temperature or low side pressure controls. Also (not shown) Series 271 and 273 PENN "Dual" Controls which combine in one unit a temperature or low side pressure actuated mechanism and built-in high pressure safety cut-out.

It gives greater dependability! It gives more efficient operation! So it's only natural that more and more refrigeration and air conditioning men want to use the new PENN 270 Series Control for all types of applications.

Here, for instance, is a special AC hookup for walk-in coolers, display cases, etc., with "high-low" speed circulating fan. Note that the resistor (or reactor) is wired in such a manner that it is shunted when switch contacts are closed. This causes "high" speed fan operation during compressor "on" periods; during compressor "off" periods, the resistor is in series with fan motor, causing "low" speed operation.

Never before did any control provide so much versatility, simplicity, efficiency and dependability. Investigate the PENN 270 Series Control. *It's the first and only refrigeration control to have a load-carrying, 2-pole switch.* You'll agree that it's new! It's different! It's better! Write **Penn Electric Switch Co., Goshen, Indiana.** In Canada: Penn Controls, Ltd., Toronto, Ontario. *Export Division: 13 E. 40th Street, New York 16, U. S. A.*

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

BTU's

News • Laws • Trends

Iceless Refrigerator Car. Tests conducted by the U. S. Department of Agriculture in cooperation with various industry groups indicate that an iceless refrigerator car can maintain temperatures of approximately 0 F under conditions of summer heat. This temperature, which cannot be reached by the ordinary refrigerator car, will maintain the prime quality of frozen foods.

The car in which the tests were conducted has 3-inch insulation and is equipped with a split-absorption system of refrigeration. Tanks attached to the underframe of the car hold the refrigerant, anhydrous ammonia, under pressure. Cooling is achieved as the ammonia moves from the tanks through a single regulating valve and expands in the cooling coils located in the ceiling of the car. When the ammonia has completed its refrigerating effect, it is finally taken up by water in absorber tanks also attached to the underframe of the car. There are no moving parts.

Norge Tests Television. In a program designed primarily to test techniques for future programs, Norge division of Borg-Warner Corp. entered the commercial television field with a half-hour show over WWJ-TV, the *Detroit News* station. Talent was brought in from Detroit entertainment spots, and the program employed a technique which took the listening-view audience behind the scenes and showed how various "shots" were made with the three cameras being employed. The program was prepared by Campbell-Ewald advertisnig agency in cooperation with C. H. MacMahon, Norge advertising director, and WWJ-TV officials.

No Models This Year. Pressed Steel Car Co., Inc., Chicago, will not go into production on electric refrigerators until 1948. A. Raysson, general sales manager of the company's domestic appliance sales division, said the delay in delivery of machinery and shortages of sheet steel is responsible for the postponement.

"From the Cradle—". Another new business requiring mechanical refrigeration has been born in Omaha, Neb., through the enterprise of Ray A. Osborne and William E. Rosser, who have established the "Prescribed Formula Service, Inc." to mix and deliver baby formulas. Mr. Osborne got the idea while battling with his own son's liquid menu. Aided by a G.I. loan and some private capital, the business is getting under way with 22 customers and a "waiting list" of some 50 parents-to-be. The service takes up when junior comes home from the hospital, with daily delivery of the required number of bottles.

Needed equipment includes a refrigerator for preserving formula ingredients and the sealed containers which will be delivered daily to each patron by refrigerated truck. As the business grows, plans call for larger refrigerated storage area and increased refrigerated delivery facilities.

It's "Hussmann Refrigerator" Now. Stockholders of the Hussmann-Ligonier Co., longtime manufacturer of refrigerated fixtures, have voted to change the company's name to Hussmann Refrigerator Co. Stockholders also voted to split the outstanding common stock two for one, and jumped the authorized total from 250,000 to 1,000,000 shares.

"Freon" Problem in Council. The Refrigeration Industry Council at a recent meeting in New York City mapped a course of action on the "Freon" situation which is expected to be followed through on during the critical summer weeks when demand for the refrigerant is at its peak. Essentially, the plan aims at meeting as equitably as possible the "Freon" requirements of all the elements in the industry who have need for it.

You Gotta Sell 'Em, Too. Selling the home freezer via the specialty and educational route may not be the easiest way, but it's the only sound, logical way of doing the job. This is the opinion of R. B. Trick, Kelvinator home freezer sales manager, as expressed in a recent talk before members of the Bureau of Radio and Electrical Appliances of San Diego (Calif.) County.

The home freezer, Mr. Trick asserted, occupies about the same excellent but undeveloped market position as did the household refrigerator in 1925, and sales pioneering therefor will be required. "While the product is ready, the market needs a great deal of spadework," he said.

Few people today really know what a home freezer is, or what it does—and even those who own them don't know all the advantages of this newest refrigeration appliance, he added. Recalling the "old days" of 1925, when salesmen of household refrigerators devoted 90% effort to selling the "use" of the equipment and only 10% to "brand", he said that, to a great extent, that's the way the home freezer business must be handled today. And the best salesman, he declared, will be one who owns—and uses—a freezer himself.

Air Conditioning With Gas. Gas for cooling as well as heating the nation's homes is now a reality. Gas utility industry executives announce that equipment, using either natural or manufactured gas, is now available for year-around air conditioning of small and large residences after 13 years of developement and testing, including work done under actual operating conditions in more than 100 homes.

Refill with the Best Oil You Can Buy

SUNISO REFRIGERATION OILS...

Custom-Made for Refrigeration Industry, First Choice with Makers of Original Equipment

For many years the refrigeration industry has practically standardized on Suniso Refrigeration Oils. In fact, the larger manufacturers of refrigeration equipment probably use more Suniso oils than the total of all other brands.

Suniso oils are now available through leading distributors. Six different grades cover the needs of every type of refrigeration and air-conditioning equipment.

Suniso oils are exceptionally low in moisture content (less than 30 parts of water in 1,000,000 parts of oil). They are unusually stable and do not react with new types of refrigerants, such as the Freons and methyl and methylene chloride. Crystal clear, characterized by a high degree of purity, they offer the service-man maximum assurance of trouble-free lubrication.

For further information about Suniso oils and the lubrication of refrigeration and air-conditioning equipment, write Department RI8.

SUN OIL COMPANY • ***Philadelphia 3, Pa.***
In Canada: Sun Oil Company, Ltd. — Toronto and Montreal

SUN
SUNOCO
INDUSTRIAL PRODUCTS

Frank Dardas (left) looks over a new piece of equipment with R. H. Sartain, a salesman for the Dardas-Harris refrigeration firm.

A CREDIT-ABLE Business

An untarnished credit record has been the cornerstone of this contractor's success—but a "hot" location didn't do any harm

"KEEP your credit clean and you've won half the battle." That's the advice that Frank Dardas would pass on to newcomers in the field of commercial refrigeration contracting.

And Mr. Dardas' advice should be well worth listening to, for he has just been "through the mill" himself. Only last April he celebrated the completion of his first year as a full-fledged refrigeration contractor. During this period he operated in partnership with John Harris as Dardas-Harris Sales & Service, Bay City, Mich. Since that time, however, the partnership has been dissolved and Mr. Dardas now is carrying on the business in his name alone.

That the firm has done right well by itself is testified to by the fact that from June to December of 1946, the first half year of operation in its new building, the company's sales totaled $55,000. No figures are available for this year, but Mr. Dardas asserts that the business is growing steadily. This continuing success he attributes largely to the firm's emphasis on its credit record, a consistent program of newspaper advertising, and last but not least an excellent business location.

Key factor in getting the new firm off to such a flying start, Mr. Dardas stoutly maintains, was this matter of a clean credit record. Such a record, he points out, has been instrumental in enabling the company to obtain preferred lines of equipment to merchandise and in keeping collections from customers on a current basis.

For this reason, the company has made a practice of paying all bills promptly, thereby taking advantage of all discounts and establishing a firm impression of financial responsibility. To further bolster this impression, the company actively solicited a Dun & Bradstreet credit investigation and rating.

No reputable manufacturer, Mr. Dardas found, is interested in dealing with any distribution outlet which has an unreliable or unsavory credit reputation. Furthermore, he has discovered that keeping his own accounts on a current basis gives him a powerful lever to use on any

Continued on page 69

The thousands of cars which travel the main highway leading past this big show window bring the firm plenty of "walk-in" trade.

Specify PEERLESS!

FOR SUPERIOR PERFORMANCE AND QUICK DELIVERY!

● Safeguard your installations by using PEERLESS products. PEERLESS has been responsible for leading innovations and outstanding improvements in modern refrigeration equipment. PEERLESS research constantly improves performance and service in all installations — large and small. A wide range of types and sizes makes the proper unit available for your every job. Quick delivery on coils for air conditioning. Depend upon PEERLESS!

SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

PEERLESS of AMERICA, Inc.

2901 Lawrence Ave. • Chicago 25, Illinois, U. S. A.

YOU PAY - THEY'LL STAY

If you've had trouble keeping your top service men on your payroll, there's a lesson for you in this story of how one dealer makes his men feel that they can't afford to quit

One of O'Hara's veteran service men turns over the money he has collected on a job to Mrs. O'Hara, who keeps the company's books. He parts with this money willingly, for at the end of the week 5% of it will be back in his pocket.

TOP-NOTCH service, most refrigeration dealers will admit, can be performed only by top-notch service men. And therein lies a problem. Obtaining service men of this high caliber usually is tough enough, but keeping them on the payroll year after year often is tougher still.

All too often the competent service man working for the average refrigeration dealer soon becomes dissatisfied with his income and seeks to improve his financial position by accepting a more lucrative offer from a competing firm or by going into business for himself. Obviously this problem of rather rapid turnover among service personnel spells bad business for the dealer.

Many attempts have been made to correct this situation by devising various systems of compensation for service men. Profit sharing programs and incentive payment plans of all types are steadily increasing in popularity among refrigeration firms. Interest in new developments along this line is increasing by leaps and bounds. All of these plans, of course, are aimed at making the employees feel that it is worthwhile to remain with the company more or less permanently, and many of them also are calculated to make service men more sales-minded.

Just such a plan of compensation is the one which is effectively employed by O'Hara Refrigeration Service in Buffalo, N. Y., for its outside service men.

The O'Hara firm is owned and operated by George O'Hara, Jr., who has spent some 22 years in the refrigeration business and has conducted his own business since 1934. The company specializes in the sale and service of General Electric refrigeration equipment, both domestic and commercial, but also is the authorized service representative for many other lines.

Mr. O'Hara has always believed, as the name of his firm implies, that service is of paramount importance, not only for its own sake but also as a means of actively promoting the sale of new equipment. Right from the start he endeavored to build a service department which would be a stable and dependable asset to his business. He learned the hard way that this was much easier said than done, but in the long run he came up with a mighty effective answer.

In the O'Hara organization the total income of an outside service man is based on a combination of three factors, all of which directly depend on the amount billed to the customer on each job which that service man handles. On each job the service man receives 50% of the labor charge, 10% of the sale price of any new equipment involved and 5% of the total bill if he collects the full amount on the job.

To more clearly illustrate this method of compensation, let's set up a typical example. Suppose, for instance, that the company sells to one of its customers $500 worth of commercial refrigeration equipment which takes 20 hours of labor to install, and that the service man who handles the job collects the full amount of the bill.

In this case the customer would be charged $500 for the new equipment and $60 for labor, as service and installation costs are figured on a basis of $3 per hour. Total bill thus would be $560. Of this amount the service man who handled the job would receive $30 (50% of the labor charges), plus $50 (10% of the sales price of the equipment), plus $28 (5% of the total price of the job, or a total of $108.

This same system of paying the service man 10% of the sales price of all new equipment applies to new

Continued on page 91

By G. M. Carson
Tallman, Robbins & Co.

Does your balance sheet show

BLACK INK OR RED?

THE successful refrigeration contractor should know HOW he comes out on each job; know on what operations he makes his money, and be certain on what ones, if any, he loses money. This information should enable him to gradually cut down or improve his unprofitable operations, and he can extend or take on more work of the kind which is most profitable to him.

The above information is, however, not sufficient. In addition to knowing where he is making his money, he must also know what is happening to it. It is one thing to make money, but it is another thing to keep it.

The way for him to know whether he is adding to his surplus and conserving his profits is to make up a Balance Sheet or statement of Assets and Liabilities.

The contractor who has an accounting department should do this monthly. The smaller operator needs it just as much. But if a monthly statement is too great a chore, try to do it two or three times a year—certainly *at least* once each year. If he makes up but one statement yearly, he should do it at the *end* of the year, or at the end of an unusually busy season.

The contractor who has his own accounting department needs no instructions along these lines. The smaller operator may do this in one of two ways. He may call in a public accountant to do it for him, or he may elect to do it himself. The contractor who choses to do it himself will find it very satisfactory to take an inventory of all Assets and Liabilities and find his net worth by subtracting his liabilities from his assets.

By comparing his net worth with the net worth at the end of the preceding period, he can determine his PROFIT for the period. It will also tell him whether he is conserving his profits or letting them get away from him.

The great danger in the foregoing procedure is that something may be overlooked. It therefore requires a very thorough inventory and check-up of each and every asset and liability. Otherwise the statement is er-

STATEMENT OF ASSETS AND LIABILITIES

ASSETS

CURRENT ASSETS
- Cash on Hand
- Cash in Bank
- Petty Cash
- Deposits with Bids
- Permits
- Notes Receivable
- Accounts Receivable on Finished Jobs
- Work in Process—not billed
- Securities Owned
- Material and Supplies on Hand
- Other Assets

Total Current Assets _____

FIXED, AND OTHER ASSETS
- Real Estate—less Depreciation on Bldg.
- Trucks—less Depreciation
- Equipment—less Depreciation
- Furniture & Fixtures—less Depreciation
- Prepaid Insurance
- Other Assets

TOTAL ASSETS _____

LIABILITIES

CURRENT LIABILITIES
- Accounts Payable
- Notes Payable
- Loans Payable
- Wages Payable
- Deposits from Customers
- Accrued Taxes
- Accrued Interest
- Insurance Payable
- Other Liabilities

Total Current Liabilities _____

LONG TERM LIABILITIES
- Mortgage on Real Estate
- Mortgage on Equipment
- Long Term Contracts
- Other

TOTAL LIABILITIES _____

NET WORTH (Difference between Assets & Liabilities) _____

roneous. No definite pattern nor special form is needed for this net worth or asset and liability statement.

The one shown in the illustration herewith provides the idea and is self-explanatory. The nice thing about this statement is that once started, it is easier the next time, because the old statement may be used as a guide to make sure nothing is overlooked.

One further word regarding the evaluation of assets, especially equipment; always allow for depreciation. Do not list a machine or truck or other piece of equipment at the same price time after time. Figure conservatively. Allow plenty for depreciation, and in the listing of your work in process do not over-estimate. Put it in at cost or selling price, whichever is the lesser. Incidentally, this statement is valuable when establishing credit relations with banks and credit rating agencies.

Income Tax Returns

The Income Tax Return causes many a contractor uneasiness, and possibly some sleepless nights. That need not be the case. There is no magic formula by which the income tax return is automatically made, but by keeping up-to-date records, where expenses are automatically classified and segregated and all information required by Uncle Sam is available, it need not be a nightmare or a gigantic task.

Figure 2 gives instructions regarding income tax. Two methods are shown. All contractors will automatically fall into one category or the other, depending upon the nature and size of his business.

Miscellaneous Tax Returns

There are so many taxes in business today that a Tax Calendar is needed as a reminder when, where and how to pay each of the several taxes. A number of these calendars or tax schedules are available from various sources. Some are more complete than others, but any of them will be helpful.

The accounting system described in these articles is equipped with a complete Tax Calendar in the back of the binder.

Under each month all the taxes which have to be paid during that month are listed and the date shown on which the return is due. Any good tax calendar will be of real help if it has this information.

The Tax Calendar should be kept where it can be referred to and reference should be made to it several times each month, so that no return is overlooked.

The modern-day contractor must be a good technician and know all about his business from a technical standpoint, and he must also be a good *business man* to succeed in the contracting business today. There was a time when a man could keep his office "under his hat", but that time is long past. A good accounting system such as we have described will definitely contribute to success and greater profits.

Editor's Note: This concludes the articles on "Accounting for Contractors". We hope you've benefitted from reading them. If there are any questions pertaining to payroll, job records or other accounting procedures, please feel free to inquire direct. We shall do our best to answer them.

INSTRUCTIONS REGARDING INCOME TAX

(For the unincorporated business—corporations may use same general procedure.)

FOR THE OPERATOR WHOSE JOBS ARE LARGE and whose unfinished jobs at the end of the year run into thousands of dollars the following method is far more advantageous. Your taxable income (Sales) and your direct operating expenses are obtained from your job record sheets of your FINISHED JOBS ONLY.

1. Take cash received (credits) from FINISHED job sheets.
2. From the "cash receipts" record take only miscellaneous income (such as scrap sales, etc.). Taxable income must include all income from business or otherwise but does not include money borrowed or income on uncompleted jobs. Pick up as misc. income "Discount taken" from column 2 of cash paid out records.
3. Take direct operating expenses (debits) from FINISHED job sheets.
4. From your cash disbursements record, take all indirect operating expenses, columns 10, 11, 12 and 13 and office overhead expenses, columns 14 to 18 inclusive, also "other" expenses in column 21. (Don't take personal items from column 20.) If you have carried totals forward from month to month for the entire year, all you have to do is take these totals at the end of the year. otherwise, if kept monthly, recap the monthly totals. Discount is obtained from cash receipts record.

Your income for tax purposes will be the amounts obtained from Steps No. 1 and No. 2 above. Your expenses for tax purposes will be the amounts obtained in steps No. 3 and No. 4 above. Do not include any unfinished jobs in steps No. 1 and No. 3 You must include ALL income and ALL direct operating expenses on FINISHED JOBS during the year even though some of the expense or income was expended or received in the preceding year. Thus all jobs are ultimately reported.

Indirect expenses, office and "other" expenses as described in steps No. 3 and No. 4 do not pertain to any specific jobs and these expenses should therefore be taken, all of them, for the entire taxable year.

FOR THE OPERATOR WHOSE JOBS ARE SMALL and whose UNFINISHED jobs at the end of the year are not ordinarily large enough to throw the taxable income and expenses too much out of line the following is considered the simpler method.

1. Take all income as shown in "cash receipts", and "discount taken" from column 2 of cash paid out record.
2. Take expenses including labor and material from "cash paid out", and discount allowed from cash receipts record.
   (NOTE: When using this method pay no attention to whether or not jobs are finished.)

Depreciation on equipment should also be taken on tax return. The ordinary single entry set of books does not provide for depreciation but it is a deductible item and should be computed for tax purposes. The above will show taxable income and expenses of your BUSINESS. In making tax return certain personal items should be included—for example, real estate taxes on residence of taxpayer are deductible—see instruction sheet on tax return blank.

It is suggested that you decide which method best fits your business and adopt it. Once adopted you must use that method henceforth. The figures obtained by the method selected should be taken to a public accountant or internal revenue agent for preparing tax return unless the tax payer is very familiar with tax laws and requirements. If tax return has heretofore been filed on a different basis, the public accountant will know what steps to take to have the basis changed to one of the above methods.

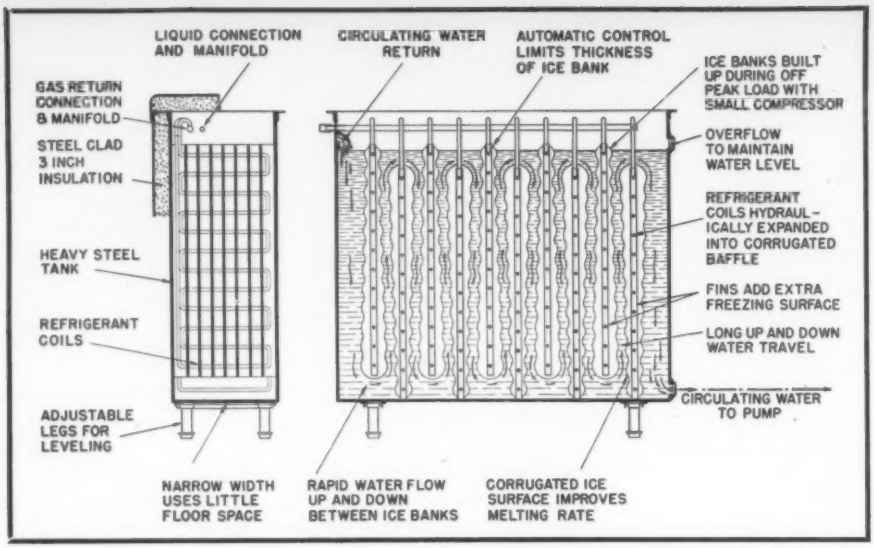

LIQUID CONNECTION AND MANIFOLD
CIRCULATING WATER RETURN
AUTOMATIC CONTROL LIMITS THICKNESS OF ICE BANK
ICE BANKS BUILT UP DURING OFF PEAK LOAD WITH SMALL COMPRESSOR
GAS RETURN CONNECTION & MANIFOLD
STEEL CLAD 3 INCH INSULATION
OVERFLOW TO MAINTAIN WATER LEVEL
REFRIGERANT COILS HYDRAULICALLY EXPANDED INTO CORRUGATED BAFFLE
HEAVY STEEL TANK
FINS ADD EXTRA FREEZING SURFACE
REFRIGERANT COILS
LONG UP AND DOWN WATER TRAVEL
CIRCULATING WATER TO PUMP
ADJUSTABLE LEGS FOR LEVELING
NARROW WIDTH USES LITTLE FLOOR SPACE
RAPID WATER FLOW UP AND DOWN BETWEEN ICE BANKS
CORRUGATED ICE SURFACE IMPROVES MELTING RATE

Fig. 6 — Cross-sectional diagram of McQuay Icy-Flo Accumulator system. (System patented by McQuay, Inc.)

Cooling for Human Comfort

By S. C. Moncher
Regional Manager
Electric Power Equipment Co.

PART 8

(Continued)

DETERMINING CAPACITY OF EQUIPMENT USING WATER AS COOLING MEDIUM

ICE AS THE COOLING AGENT: Ice is seldom used as the cooling agent in the average comfort cooling installation, due to (1) the high operating cost of cooling by this method, and (2) because of the constant attention which must be paid to the replenishment of the ice supply. There are exceptional cases, however, where the use of ice may prove advantageous. Such would be the case if a sufficient supply of ice were available at low cost, or where power for mechanical refrigeration could not be provided. Also, since the original cost of an ice cooling system is less than that of a mechanical refrigeration system, the use of an ice cooling system may prove economical in installations where the equipment is expected to be used only a small amount of the time during the summer season, such as in places of worship, special meeting halls, and the like.

Whenever ice is used as the cooling medium, it is generally used in conjunction with a circulating water system. The water is sprayed over the ice in an insulated chamber, after which it is circulated through cooling coils or used in an air washer. The temperature of the water is controlled by a mixing valve which bypasses some of the return water from the cooling apparatus, and mixes it with the cold water leaving the ice chamber. To compensate for the water added from the melting ice, some of the return water is also wasted.

THE ICE ACCUMULATION SYSTEM: The use of ice as the sole cooling agent is not to be confused with systems in which ice formation is used as a heat storage device in conjunction with mechanical refrigeration. The principle behind this

Fig. 7—Standard or single-circuit water coil. (Photo from American Blower Corp.)

ice accumulation system is to utilize the mechanical refrigeration equipment to build up ice during the period when it normally would be shut down or operating under reduced load. Then, when conditions of peak load are reached, the latent heat released by the melting ice supplements the heat absorbing capacity of the mechanical cooling equipment.

For example, let us consider the case of a store with a peak heat load of 60,000 Btu per hour. If this store is open only from 9 a.m. to 5 p.m., the equipment will either be shut down during the night, or, if allowed to operate, will run at greatly reduced capacity. It is possible, therefore, to utilize the capacity of the refrigeration condensing unit in building up ice during the hours when the store is closed. Then, during the hours when the store is open, water may be circulated over the ice, and used to supplement the heat absorbing capacity of the refrigeration plant. In this manner, it becomes possible to divide the daily operating load over a period of 24 hours, and thus use a smaller refrigeration plant than would be necessary if ice had not been built up during the off period.

In the ordinary type of direct expansion where ice accumulation is not used, a refrigeration condensing unit with a capacity of 60,000 Btu per hour would be necessary to provide for the peak requirements of the example above. By using the ice accumulation system, however, the size of the condensing unit will be reduced to one which can handle the total daily load in a period of 24 hours. We shall assume the total maximum load for the 8-hour period during which the store is open to be 400,000 Btu. In using the ice accumulation system, it will be necessary to select a condensing unit capable of delivering approximately 500,000 Btu when operating for a period of 24 hours. The extra 100,000 Btu over the 400,000 necessary to handle the heat load of the store is to compensate for (1) the heat leakage from the ice storage tank, (2) heat due to the water pump, and (3) other heat gains peculiar to this system. Based on a load of 500,000 Btu per 24 hours, a condensing unit with a capacity of 21,000 Btu per hour will be necessary, compared with one for 60,000 Btu for the ordinary installation. The low side and the air handling equipment, however, will still have to be sized for the peak load requirement, inasmuch as the type of load which this equipment handles does not lend itself to accumulation.

Figure 6 shows a diagramatic cross section of the McQuay "ICY-FLO Accumulator", which incorporates the features of the storing of cooling capacity by means of ice build-up. During that period of the day when cooling of the space is not required, the entire capacity of the condensing unit is utilized in building up ice on the refrigerated surfaces of the accumulator tank. Then, when comfort cooling is required, water is caused to flow over the banks of ice at such a rate that it is cooled to the desired temperature, after which it may be utilized either in an air washer or in cooling coils. In some installations, both water coils and direct expansion coils are used in series, the condensing unit providing refrigerant to the direct expansion coils when cooling is required, and to the ice accumu-

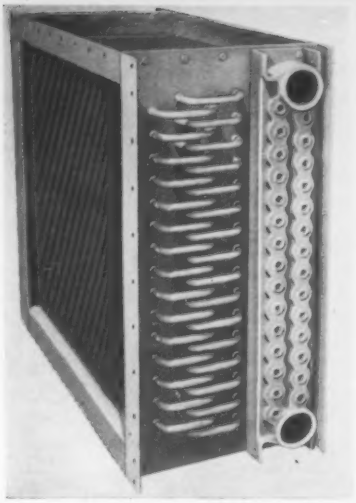


Fig. 8—Double-circuit water coil. (Photo from the Trane Co.)

Fig. 9 — Table of heat transfer capacities of coils for various air and water velocities. Capacities are given in Btu per hour per row of tubes per degree of mean temperature difference per sq. ft. of face area.

WATER VELOCITY FT./SEC.	AIR VELOCITY							
	300	400	500	600	700	800	900	1000
0.5	82	90	95	100	104	107	110	112
1.0	101	112	122	130	135	140	145	149
1.5	111	126	137	147	155	161	168	173
2.0	118	135	148	160	169	177	184	190
2.5	124	142	156	170	180	189	197	205
3.0	128	147	163	178	188	198	207	215
4.0	134	155	173	190	201	213	224	233
5.0	138	161	180	198	211	224	236	247
6.0	142	166	186	205	219	233	246	257

Fig. 10—Table of water friction for various water velocities and specific coil face lengths. (Tables from Trane bulletin DS-365.)

WATER VELOCITY FEET PER SECOND	COIL FACE LENGTH IN INCHES									
	12	24	36	48	60	72	84	96	108	120
.5	.02	.03	.03	.04	.04	.05	.05	.05	.06	.06
1.0	.09	.11	.12	.13	.15	.16	.18	.19	.21	.22
1.5	.19	.22	.25	.28	.31	.34	.37	.40	.43	.46
2.0	.32	.37	.42	.47	.53	.58	.63	.68	.73	.79
2.5	.48	.56	.64	.71	.79	.87	.95	1.0	1.1	1.2
3.0	.67	.78	.89	1.0	1.1	1.2	1.3	1.4	1.6	1.7
3.5	.89	1.0	1.2	1.3	1.5	1.6	1.8	1.9	2.1	2.2
4.0	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.6	2.8
5.0	1.7	2.0	2.3	2.6	2.8	3.1	3.4	3.6	3.9	4.2
6.0	2.4	2.8	3.2	3.6	4.0	4.4	4.7	5.1	5.5	5.9
7.0	3 2	3.7	4.2	4.7	5.3	5.8	6.3	6.8	7.3	7.9
8.0	4.1	4.7	5.4	6.1	6.7	7.4	8.0	8.7	9.4	10.0

lator during the off hours. In other installations, the capacity of the condensing unit is used continually in building up ice until the thickness of the ice bank has reached a predetermined value.

Ice accumulating systems are not often used in the average small installation because the cost of the additional equipment necessary usually offsets any saving gained from the use of a smaller condensing unit. In installations where the operating time is exceedingly short, however (2 or 3 hours per day) their use may well be considered. Also, in those localities where demand charges of utility companies based on the peak demand are high, the use of this system may offer an economy in power consumption charges.

WATER COILS: Fin coils for use with water as refrigerant are similar in construction to direct expansion coils except for the headering and circulating arrangements. That portion of the coil exposed to the air stream, however, is identical for both water and direct expansion coils.

Water coils must be circulated for water flow in such a manner as to utilize most effectively the quantity of water at the pressure available. The circuiting arrangement to be used for any specific installation is determined by two factors: (1) the desired water velocity through the tubes of the coil and (2) the allowable water friction loss through the coil. Since a knowledge of the various types of coil circuits is necessary to an understanding of the method of water coil selection, coil circuiting will be discussed in detail below.

The standard or single-circuit water coil is constructed with all the tubes in the first row leading out of the water inlet header, and all the tubes in the last row leading out of the water outlet header. A 6-row coil of this type is shown in Figure 7. From the inlet header, the water passes through all the tubes in the first row for the entire length of the coil. It then returns through the tubes in the second row, and continues through the 3rd, 4th, 5th, and 6th rows in a serpentine manner until it finally reaches the outlet header. By the time the water leaves the coil, it has made 6 complete passes, each pass consisting of all the tubes in a single tow of the coil. The circuiting of this coil could be described, therefore, as *single-circuit, 6-pass, serpentine.*

Water coils are also obtainable circuited in such a manner that there are 2 rows of coil to each pass of water, as illustrated in Figure 8. A coil circuited in this manner is known as a *double-circuit* type of coil. In the 6-row coil shown in figure 8 the water from the inlet header enters both the first and 2nd rows of tubes simultaneously, returns through the 3rd and 4th rows, and then flows through the 5th and 6th rows into the outlet header on the opposite end. This coil is, therefore, a *6-row, double circuit 3-pass, serpentine* coil.

Continued on page 73

Rebuilding the Coldspot Unit

By A. G. Bate

This series of articles is intended to cover certain specific phases of rebuilding work on Coldspot open-type condensing units. It is an "advanced" series, in that it assumes that the service man has a general knowledge of how to change motors, thermostats, etc., and wants to know how to handle some of the problems which otherwise would necessitate returning the units to the factory.

3. CHECK VALVE TROUBLE

THE check valve is a very important consideration in respect to proper operation of the Coldspot unit. If the check leaks, a dripping or gurgling sound will be heard in the evaporator when the motor is turned off. The hot gas and liquid gas passes back to the evaporator at the opposite end of the expansion valve. This condition causes defrosting around the separator where the thermal bulb is connected, and results in a short "off" cycle. When the check valve leaks badly, the pump merely churns the gas, and has an action which corresponds to trying to pump up a tire by hand when there is a defective valve in the tire. As a consequence, the pump will operate very inefficiently and there will be a long "on" cycle.

In the past, to correct this problem it was necessary to dismantle the pump from the unit and place the pump casting on the workbench and remove and replace the seat, using special tools. This operation would take most mechanics approximately two hours.

A new renewable check seat, now available, is simply driven into the old seat by means of a special drive pin—a five-minute operation, after the refrigerant gas is removed. The same wafer, cage and ball may be used if in good condition, or may be purchased without difficulty. A description of the new renewable seat was published on page 75 of the April, 1947 issue of this magazine.

When the seal leaks slightly the oil in the pump eventually leaks out, and when no oil is left the unit will not refrigerate and a loud clicking sound will be heard, due to the blade clatter.

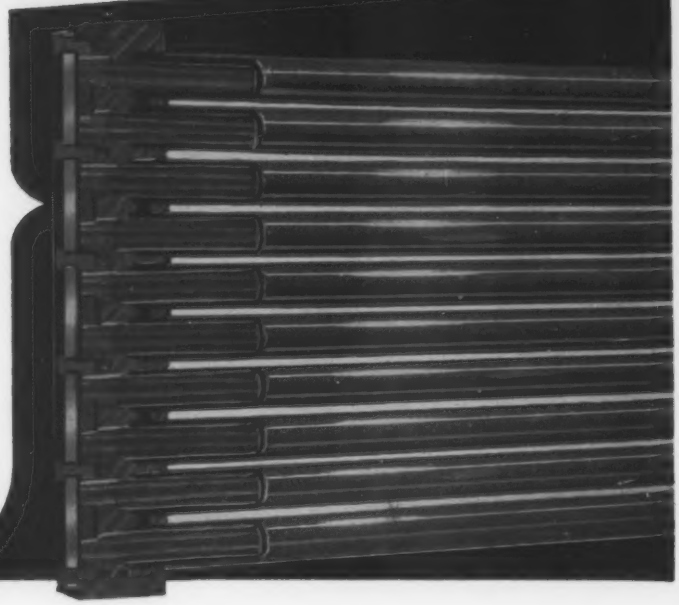
For best operation, it is important that oil of proper viscosity be used. Oil of a viscosity of S.A.E. 10-20 is recommended. In our work with Coldspot units we have had good results with an oil merchandised by Standard Oil Co. and known as No. 1 oil. Whatever the lubricant used, it should be of a type that does not break down under heat and that flows freely at 10° below freezing. An inefficient pump, with oil of improper type, will cause oil logging and make the unit "act up" considerably.

Lack of oil, or a restricted oil line, will score the cylinder and the valve blades; this necessitates honing the cylinder and replacing the blades.

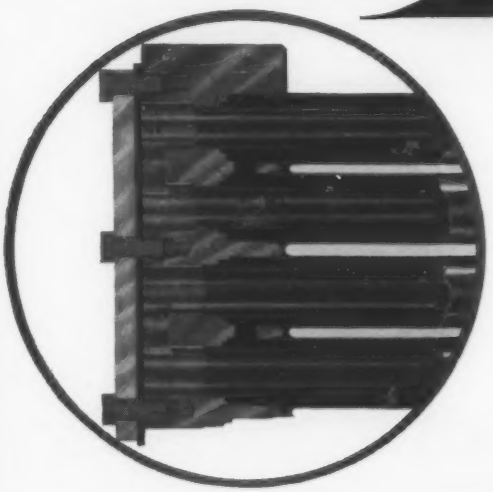
The oil (1 pint) should be placed in the dome when assembling the compressor unit. To hold the oil in the dome, the unit should be tipped down on the workbench while it is being bolted up and a new gasket used. To eliminate any air pockets the oil line should be primed with oil by use of a plunger pump before the compressor is assembled.

DOUBLE-TUBE COUNTER-FLOW **CLEANABLE** WATER-COOLED CONDENSERS

Objective: Operational Economy



Answer: HALSTEAD & MITCHELL'S *New* TWO-STAGE CONDENSERS



One of the surest ways to obtain economical condenser operation is to get the maximum heat-transfer capacity by taking the most heat from the refrigerant in the shortest period of time.

Halstead & Mitchell's New Two-Stage Condenser design makes possible greater concentration of copper water-tube surfaces in the lower portion of the condenser. The smaller top water tubes allow ample refrigerant space, thereby eliminating resistance or pressure drop and affording the lowest possible head pressures.

The new Two-Stage design improves refrigerant velocity and increases heat-transfer efficiency. Thus, with this construction, greater heat-transfer values are affected.

HM Condensers available from ½ to 10 H. P. from wholesalers in principal cities.

HM Cleanable Condensers can be maintained at "new-unit" efficiency and economy by regular and continued use of a standard cleaning tool. Water tubes are accessible at both ends—just loosen a few bolts and slide the end plates off—and there is nothing to obstruct the simple cleaning operation. The cleaning tool HAS to clean! Each quick cleaning operation takes only minutes, yet adds months and years of the most efficient and economical service to the life of the condenser.

HM Halstead & Mitchell

Wholesalers in principal cities *Write for descriptive literature.*

OFFICES: Bessemer Building, Pittsburgh 22, Pa.

Sidelines ARE PROFIT LINES

E. L. Martin with one of the special freezer cabinets that the company builds as a sideline to its regular operations.

If you're alert to opportunities there are plenty of ways in which you can develop extra profits without getting outside refrigeration. This experience story proves it

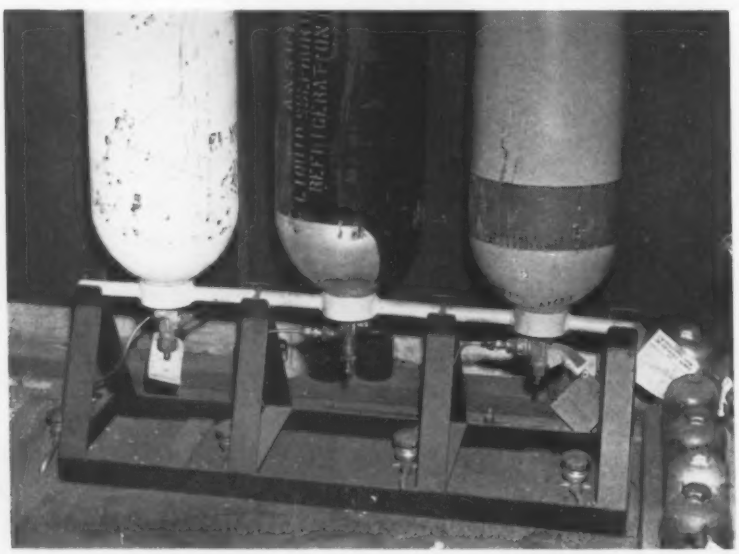
By Ernest W. Fair

THERE'S a lot of ways to make extra profits from a refrigeration service business—and the Martin Refrigeration Co. at 1754 Blake street in Denver, Colo., can prove it.

Operated by E. L. and L. W. Martin, the firm handles the service needs of over 500 customers and in its 40x45 foot location in Denver's industrial section has developed a number of sidelines which continue to give it profitable business day-in and day-out.

Custom painting and refinishing, started in 1943, is one phase of this operation. A paint oven installed to handle a war contract calling for the painting of ammunition box handles (they painted over 500,000 of them) has developed into a mechanical oven handling 3,000 parts an hour when working at capacity. The oven is being used for refinishing work not only on refrigeration equipment but also on such other equipment as sewing machine heads, on which the crackle finish is renewed.

Another one of Martin Refrigeration Co.'s profit-making sidelines. Hundreds of the refrigerant drum racks shown have been made and sold by the company.



The Martins designed and improved this operation from scratch as an auxiliary of their refrigeration business and it is today being utilized as a profitable part of the shop's business operations.

They have also found that this and other units could be profitably used in designing and building freezer boxes of all kinds. It took few additional tools and machines to those they already had in their shop to handle such work, and required only the initiative to branch out and learn a new way to make profits in the refrigeration service business.

No effort is being made by the Martins to expand such construction into the general field; they believe that it belongs as a part of their refrigeration shop operation and as a custom service to their customers. The fact that they do go out of their way to offer this service has brought many new and very profitable accounts to their regular service roster.

Materials supply has been a major factor in the past, but even this is being remedied today.

"There's nothing difficult about it if a refrigeration man knows his business and has a few tools to work with," says E. L. Martin, who handles the shop end, "it's a profitable adjacent service to your business and one in which almost any refrigeration service firm can enter.

Continued on page 82

FOR A WIDE MARKET

LOCKER PLANTS

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WALK-IN COOLERS

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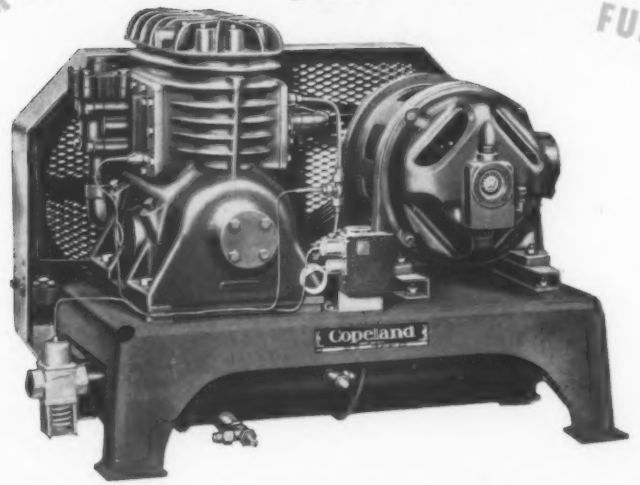
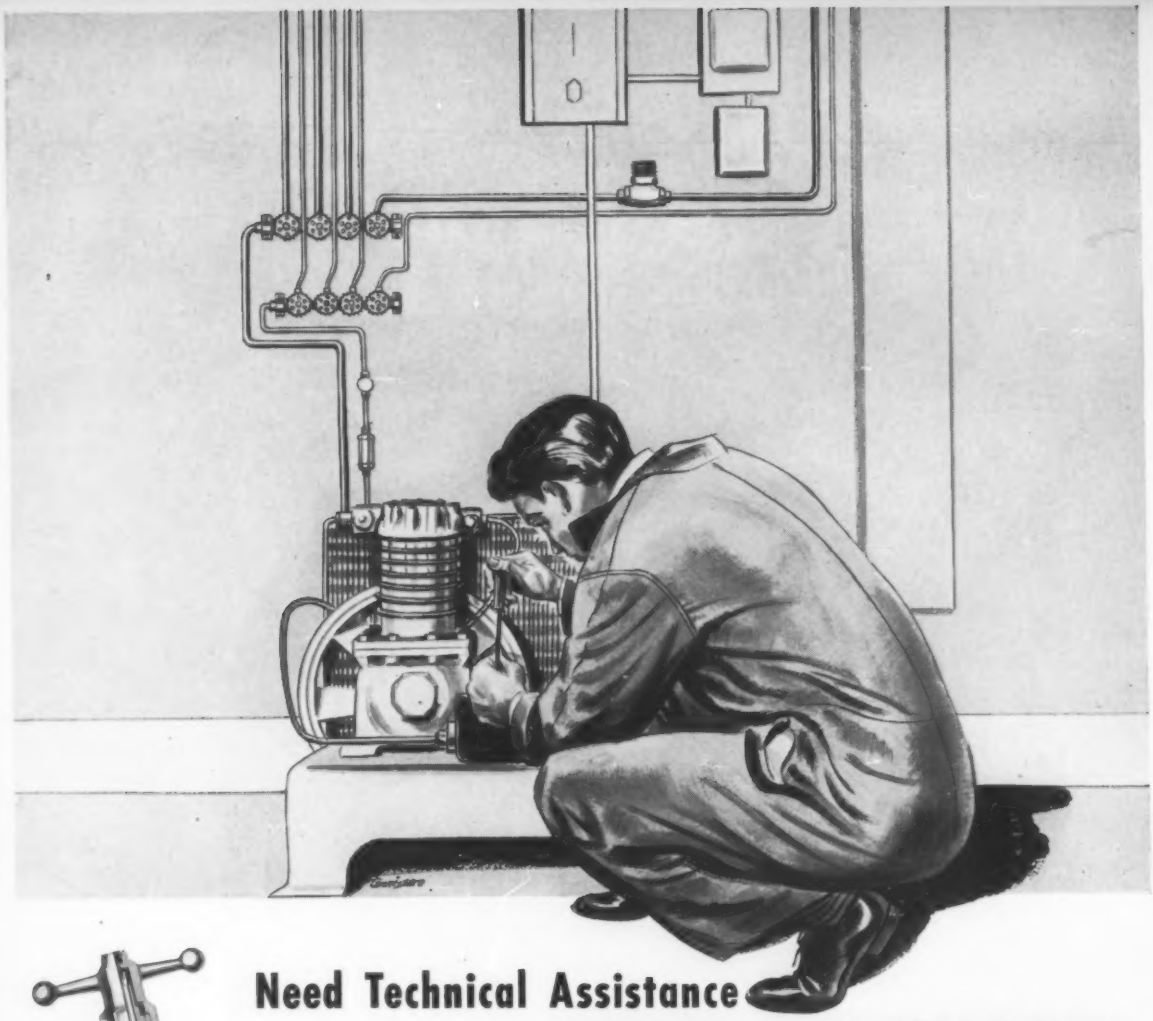


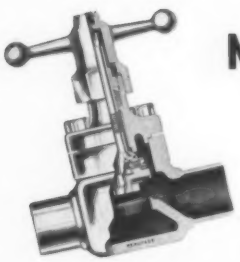
Copeland 3, 5 and 7½ H.P. Units

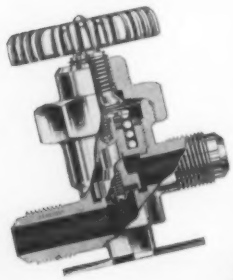
Aggressive sales action can be followed up with prompt delivery, thanks to Copeland's production achievement. Cash in on the big, waiting market. Profit on these top values for locker plants, walk-in coolers, large food and dairy stores and air-conditioning installations. Order these 3, 5 and 7½ H.P. units today!

MODEL 303-W	MODEL 503-W	MODEL 750-WFH
3 H.P.	5 H.P.	7½ H.P.
$739.00 LIST	$1091.50 LIST	$1429.50 LIST
With Control—Less Starter	*With Control—Less Starter*	*With Control—Less Starter*

COPELAND REFRIGERATION CORPORATION, SIDNEY, OHIO







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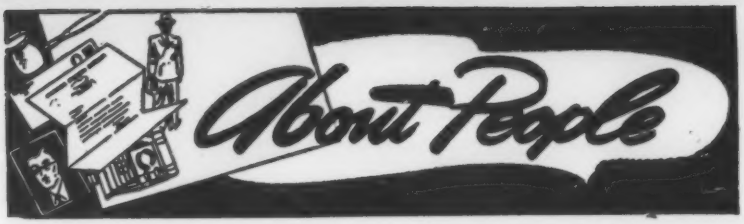
AMERICA'S FIRST NAME IN QUALITY VALVES

KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.



Hugo C. Smith has been named to represent Remco, Inc., Pittsburgh manufacturer of refrigeration accessories and heat transfer equipment, in Ohio, western Pennsylvannia, West Virginia, eastern Michigan, and in Buffalo, N. Y. A native of Buffalo, Mr. Smith has been connected with the refrigeration industry since 1928, having worked successively for Frigidaire Sales Corp., Carrier Corp. and Alco Valve Co.

Charles R. Mougey has been named sales promotion and advertising manager of Wilson Cabinet Co., Smyrna, Del., manufacturer of home and farm freezers, commercial refrigeration, milk coolers, and other products. Mr. Mougey, who assumes his new duties in connection with an expanded sales program now being developed by the Wilson company, has been in charge of advertising and sales promotion for the Airtemp Division of Chrysler Corp., where he introduced and put into effect new plans of dealer advertising and dealer identification.

Several personnel changes in district offices of the Building Materials Div. of Armstrong Cork Co. have been announced. **L. C. Bayless** has been assigned to the Philadelphia office as a salesman on dealer products; **T. D. Lent,** formerly industrial products salesman at Chicago, has been transferred to the Kansas City office to represent the company in the Nebraska-Iowa section; **Alfred T. Roper,** formerly with the Detroit office, has been transferred to the Minneapolis office as a salesman on heat insulation products.

J. A. Burnett and **L. W. McCarty** have been appointed assistant service managers for the Domestic Appliance Div., Pressed Steel Car Co., Inc. Mr. Burnett previously was associated with Hotpoint in the service and merchandising promotion departments. Mr. McCarty formerly was with Westinghouse and General Business Machines.

Alan J. Bronold has been appointed general agency and contractor manager of the Sturtevant Div. of Westinghouse Electric Corp., Hyde Park, Mass. Mr. Bronold for the past four years was assistant to the vice president in charge of sales at Westinghouse headquarters in Pittsburgh.

In his new position, Mr. Bronold will coordinate the headquarters activities of the heating, ventilating, air conditioning and Precipitron departments and the application of Sturtevant products for heading, piping and air conditioning contractors and for industrial process air conditioning systems.

Henry M. (Hank) Tull, has been appointed southeast region sales manager of Liquid Carbonic Corp. Mr. Tull's area includes Florida, Georgia, Alabama, North and South Carolina, and eastern Tennessee. He will continue to headquarter in Atlanta. Mr. Tull has been with Liquid as ice cream cabinet and dry ice representative since 1941. Prior to that he was district manager for Lily Tulip Cup, and sales representative for National Cash Register.

John W. Krueger is the new vice president and general manager of Seeger Refrigerator Co.'s Evansville plant. Mr. Krueger was formerly general superintendent of Frigidaire's Plant No. 2. **T. L. Pantz,** also of Frigidaire, will be Mr. Krueger's assistant. **John S. Holl,** general manager of the Saint Paul plant, who has been in charge of the Evansville plant since last spring, will return to his capacity in the Saint Paul plant.

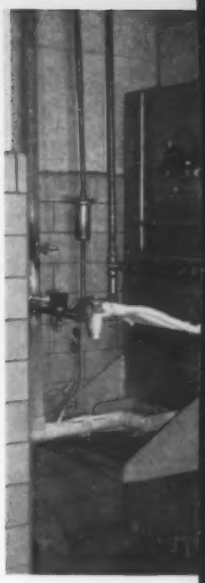
Dr. Boris Emmet has been elected executive vice president of Noma Electric Corp. Dr. Emmet formerly was retail merchandising manager for Sears, Roebuck and Co. **John Seubert,** formerly manager of Noma's Estate Heatrola Div., also has been elected as a vice-president.

In recognition of his achievements in the field of refrigeration engineering, **E. C. Raney,** president of Ranco Inc., has been awarded the Lamme medal by Ohio State University. The Lamme medal is awarded each year by the university to an Ohio State alumnus who had distinguished himself by engineering achievement. Mr. Raney, whose company for many years has been a leading manufacturer of thermostatic controls, received his degree in mechanical and electrical engineering from Ohio State in 1912. Mr. Raney developed the controls which his company now manufactures, as well as the automatic reclosing circuit breaker which it previously produced.

Walter T. Dailard, former sales representative for National Cash Register Co., has been appointed retail salesman for Perfecold Refrigeration Co. of Los Angeles. Mr. Dailard's background includes 18 years of selling experience with major specialty items.

Hardening room held at -20 F has a capacity of 55,000 gallons of ice cream. Air ducts and outlets are shown.

Photo from "Electrical Production"



One of the two floor-mo handles the hardening

First all-Freon dairy sy

Savings in space, maintenance costs, power consumption, and water usage have resulted from the installation of this first two-stage complete Freon dairy refrigeration system

Four-Fol

WHAT is believed to be the first *complete* Freon dairy refrigeration installation in the United States has been operating for several months now in the newly constructed Euclid-Race Dairy in Euclid, Ohio. The installation was made by Allied Refrigeration Corp., Carrier distributor in Cleveland.

Closely checked operating records for this installation reveal that it has proven an economical investment for the dairy, according to Frank Race, Jr., president, by reducing operating costs in the following four ways:

Space—Equipment is compact and occupies less than half the floor space needed for conventional equipment.

Maintenance—Use of compact equipment and non-corrosive copper lines reduces maintenance to a minimum.

Power—Thermostatic control of temperatures in all production processes assures operation of compressors only as required.

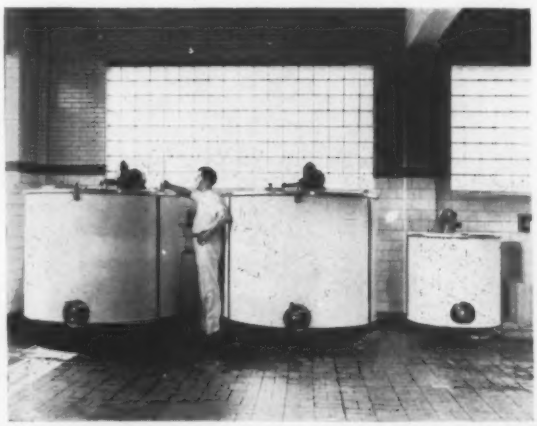
Water—Enclosed evaporative condensers equipped for re-use of water cut water consumption.

This Freon system was installed in a brand new dairy plant constructed to replace the firm's old building which was demolished in the disastrous East Ohio Gas Co. explosion a few years ago. The new plant, Mr. Race reports, handles twice the capacity of the old dairy, with no increase in electrical consumption.

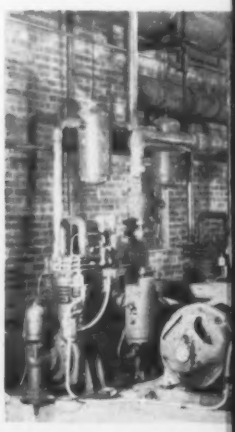
The refrigeration plant consists of

Among the functions of the high-stage system is the cooling of a 2800 gph water system for these three modern mixing vats.

Photo from "Electrical Production"



Two 50-hp and two 30-h for high and low stages.



arrier cold diffusers which Water defrost is used.

Two continuous ice cream freezers produce an average of 350 gph. A separate machine makes Popsicles.

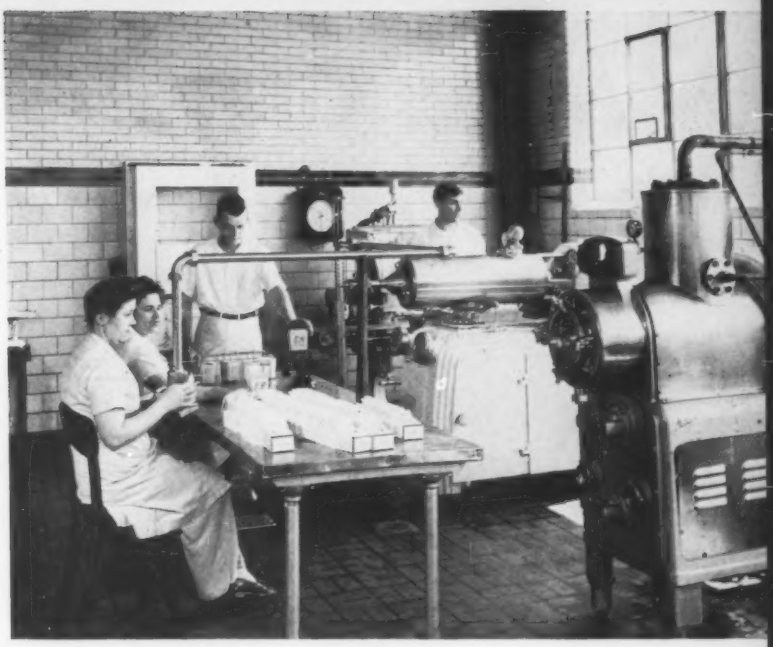


Photo from "Electrical Production"

m provides

Economy

a two-stage system using F-12 in the high stage and F-22 in the low stage.

Two 7G8 Carrier compressors driven by two 50-hp motors provide refrigeration for the high stage of the system. This equipment takes care of condensing the F-22 refrigerant for the low stage of the system, and also provides for the cooling of a 2800 gph water system for the milk and ice cream mixing tanks. This water cooling system uses an ethylene glycol solution at 28 F. which is circulated within a space between the inner and outer jackets of the mixing vats. Chilling the mix before it reaches the ice cream freezers makes possible increased production and greater efficiency. The F-12 gas used in the high stage of this refrigerating system is condensed by evaporative condensers located on the roof of the building.

The low temperature stage of the system, employing F-22 as refrigerant, is powered by two Carrier 7G8 compressors driven by two 30-hp motors. As mentioned previously, the F-22 in this stage is condensed by the F-12 of the high stage through an Acme flash cooler.

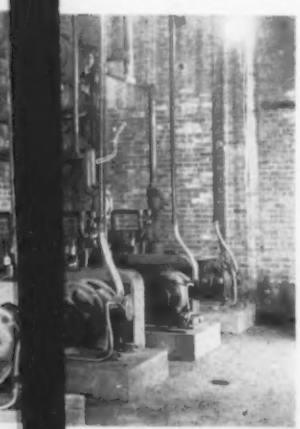
The low temperature (F-22) stage handles two continuous ice cream freezers—one Volk and one Creamery Package unit—with a combined average production of 350 gph, and also provides refrigeration for a hardening and storage room with a capacity of 55,000 gallons of ice cream and related products. A Jo-Lo Popsicle machine with a maximum capacity of 2,000 dozen Popsicles per day also is hooked into this stage of the system.

After the ice cream leaves the freezers it is packaged. Pint and quart packages are placed in wire baskets to facilitate storing. These wire baskets, together with the multiple-gallon containers, move on an electrically driven conveyor into the low-temperature room for hardening and storage.

This conveyor extends the entire

Continued on page 60

essors provide refrigeration tage uses F-12, low F-22.

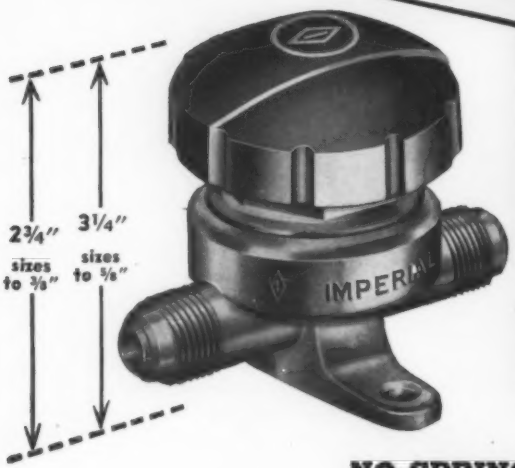


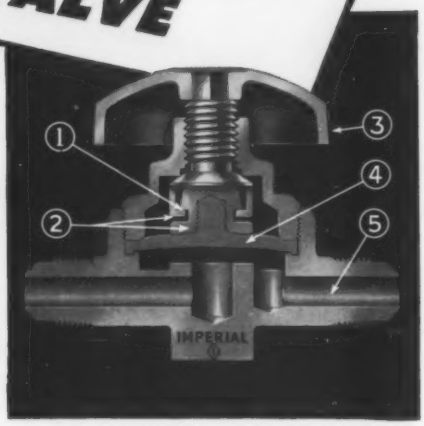
All indicating instruments, starters, and automatic controls are combined on this specially built panel. Back is removable.
Photo from "Electrical Production"

LOW OVERALL HEIGHT

Means Neat, Compact Installations

IMPERIAL DIASEAL VALVE





NO SPRINGS • "EITHER-WAY" FLOW

Extremely low height — *another important point of superiority of DiaSeal Valves* — is a decided advantage where installations are made in aisles or close quarters.

They offer a minimum of protrusion. In fact, Imperial DiaSeal Valves — in sizes up to and including ⅝" O.D. — can be installed in a 4" conduit box with room to spare.

Other features that make the DiaSeal the outstanding valve for refrigeration service are readily apparent in the sectional view.

Ask for Bulletin 103-REF

See Your Jobber

1. NO SPRINGS —DiaSeal Valve cannot "stick shut" because diaphragm is lifted mechanically. Positive control with flow in either direction.

2. ONLY TWO MOVING PARTS — Simple construction assures greater dependability.

3. EASY FINGER-TIP ACTION — Quick, sure opening and closing with less than two turns of handle.

4. LONG LIFE DIAPHRAGM is impervious to all common refrigerants. In actual tests, has withstood over 1,000,000 openings and closings under refrigerant pressure.

5. INLET AND OUTLET PORTS IN LINE. Simplifies installation.

Furnished in 2-way and angle types, with either flare or solder connections. The Imperial Triple-Seal Groove is an added feature on flare connections ⅜" and larger.

THE IMPERIAL BRASS MFG. CO., 536 S. Racine Avenue, Chicago 7, Illinois

IMPERIAL

FITTINGS • VALVES • FILTERS • FLOATS • DEHYDRATORS • CHARGING LINES • TOOLS FOR CUTTING, FLARING, BENDING, PINCH-OFF AND SWEDGING

REFRIGERATION INDUSTRY *News*

WESTINGHOUSE RESEARCH MEN STUDY NEW TWO-TEMPERATURE PHENOMENON

A "hot-cold pipe" 15 inches long and 1 inch in diameter that converts ordinary compressed air into both hot and cold air without the aid of moving parts has been built by Westinghouse research engineers. As yet, scientists have no explanation for the phenomenon, though it is conjectured that the cause may be a frictional effect between gases moving at different velocities. To study the principle involved, a working model has been made.

In operation, compressed air is pumped into a nozzle at one end of the pipe. There it strikes the inner wall of the pipe tangential to the diameter and is converted into a whirlpool of spinning gases. The air in the center becomes cold almost instantly while that on the periphery gets warm. The cold air is drawn off through a ¼-inch opening at the center of one end, while the warm air is tapped from the periphery.

With the original tube measuring $\frac{3}{10}$ of an inch in diameter, R. Hilsch, its German inventor, claims to have produced simultaneous jets at 154 F and 10 F. The present model has purposely been constructed larger in diameter to expedite instrumentation for scientific study. For this reason it gives a temperature difference of only several degrees F.

Low efficiency rules out commercial application at this time, but like the "blue glow" in Edison's experimental electric light that led to his invention of the first electronic tube, it may lead to unexpected developments. Even now it holds promise as a handy laboratory tool for making cold as simply as a Bunsen burner makes heat.

Engineer Warren Witzig, with his right hand on the incoming compressed air line, takes a reading on the "hot-cold pipe" in the Westinghouse Research Laboratories. Warm air is being drawn off at the left end, while cold air is drawn from the opposite end.

NO DROP SEEN IN COOLING PRICES

Manufacturers of air conditioning equipment, among others, believe there can be no important price reductions before the end of the year, according to a survey by the National Industrial Conference Board. For other price news see the two columns at the right.

LATEST PRICE INFORMATION

PRICE RAISED ON 6 PHILCO UNITS

Price increases of from $10 to $24.50 on Philco Corp's., higher priced refrigerator models were announced recently. Six models were affected by the changes. Model designations, and new prices, are: 750, $286.50; 751, $316.50; 752, $336.50; 931, $294.50; 950, $346.50; 951, $376.50. These are Central area zone prices, may vary slightly from those in other zones.

Prices include installation, warranty and excise taxes.

Philco has started production on a 4 cu. ft. model (model 411) for sale to apartments and larger housing units. Larry E. Gubb, Philco chairman, pointed out that in comparison with 1941 prices the company had increased 40% whereas general living costs are up by 55%.

* * *

WESTINGHOUSE UPS PRICE ON 3 UNITS

Price increases ranging from $5 to $25 on three of its four household refrigerators in current production have been announced by the appliance division of Westinghouse Electric Corp. New prices were effective as of June 30.

Price of model B-7 went to $229.95 from $224.95; of model MF-7 to $299.95 from $289.95; and of model D-9 to $299.95 from $274.95. Model E-7 remains at $184.95.

* * *

SOME YORK UNITS INCREASED 5-10%

Price increases of from 5 to 10% on a number of York Corp., refrigeration and air conditioning products were made effective June 16 by the company. No packaged air conditioner models were affected by the price increases, however.

2 CROSLEY MODELS RAISED BY $20

A $20 increase in the price of the Crosley "Shelvador" 7 and 9 cu. ft. refrigerators has been announced by Crosley division of Avco Corp., Cincinnati. The company said recently granted wage increases made the higher prices necessary. New prices are now $269.95 for the SE747 unit and $309.95 for the SE947 unit.

* * *

KELVINATOR RAISES REFRIGERATOR PRICE

Because of increasing production costs, Nash-Kelvinator Corp. has increased refrigerator retail prices $10 on five models and $15 on one model, the increases averaging less than 5%. Recent wage increases of 15 cents an hour in all plants and steadily rising parts and materials costs were given as reasons for the price adjustments.

* * *

FRIGIDAIRE RAISES PRICES 3 TO 4%

Frigidaire Division, General Motors Corp., recently announced an adjustment in the price of some of its products to compensate for recent increases in materials and labor costs.

Average increase on the company's household refrigerator line, according to P. M. Bratten, general sales manager, is about 4½%; in the electric range line the average increase is under 3%.

Mr. Bratten pointed out that despite increases the retail price for Frigidaire units is only 11% greater than in 1939, per cubic foot. The 6-cu. ft. 1939 model retailed for $179.95, while today's model of equal capacity now sells for $189.75, an increase of 5.6%.

SCHNACKE MEETINGS STARTED

Schnacke, Inc. factory men held an all-day "school" recently for dealers of Refrigeration Sales Corp., Cleveland. In the background are W. A. Givens, E. L. Roy Fair, James C. Lyon, service manager, and Eddie Miller, sales manager.

LOCKER SHOW SET FOR KANSAS CITY SEPT. 22 TO 25

The Eighth Annual Frozen Food Locker Exposition, first exclusive postwar showing of all the materials, services, and equipment which goes to make up the modern frozen food locker plant, is scheduled to be held Sept. 22 to 25 at the Municipal Auditorium, Kansas City, Mo.

This exposition is being sponsored by the National Frozen Food Locker Association, which will hold its annual convention in conjunction with the show. This group will have complete charge of the program, meetings, and round-table discussions. Exhibits will be under the direction of the Frozen Food Locker Institute (formerly the Frozen Food Locker Manufacturers and Suppliers Association).

The show will be open from noon until 6 p. m. every day except Thursday, the final day, when it will be open from 10 a. m. to 4 p. m.

A partial list of companies already signed for exhibit space follows:

Food Locker Equipment Co.; Pasteuray Corp.; Midwest Metal Stamping Co.; Enrichment Products Co.; McQuay, Inc.; Pacific Lumber Co.; Morton Salt Co.; A. E. Staley Mfg. Co.; Frigidaire Div.; All-American Meat & Bone Cutter Co.

Quick Frozen Foods; United Cork Companies; Iceberg Refrigerated Locker Systems, Inc.; Arcticaire Refrigeration Co.; Lily-Tulip Cup Corp.; D. R. Cord Co.; Safe-Way Food Locker Co.; The Kleen-Kut Mfg. Co.; McGrew Machine Co.; Cleveland Refrigerator Co.

All-Steel Equipment, Inc.; Lindley Box & Paper Co.; Locker Publications Co.; Jamison Cold Storage Door Co.; Acme Visible Records, Inc.; Kalamazoo Vegetable Parchment Co.; Economy Power Engineering Co.; Tankers Rubber Stamp, Inc.; Phil Hantover, Inc.; York Corp.

Chase Indust. Refrig. Equip. & Eng. Co.; Arketex Ceramic Corp.; General Electric Co.; Biro Manufacturing Co.; C. F. Mohr Associates; The Pickwick Co.; U. S. Slicing Machine Co.; Earle E. Brown Organization; The Griffith Laboratories; Master Mfg. Corp.

Container Corp. of America; Marathon Corp.; Airtex Corp.; Dole Refrigerating Co.; Meat Merchandising, Inc.; Butcher Boy Cold Storage Door Co.; Amana Society; Salem Engineering Co.; Koch's Butchers' Supply Co.

BAKER SETS UP PLANT IN MAINE

Establishment by Baker Ice Machine Co. of general headquarters in South Windham, Me., and of a factory to produce small condensing units has been announced by Ross Rathbun, president.

Executive, sales and engineering staffs of the company are now located at the new factory, where condensing units from 1½ to 15 hp for "Freon" and ammonia will be produced. Manufacture of larger compressors and condensing units will continue at Baker's Omaha, Neb. plant. Renewal parts will be supplied out of the Omaha factory.

PAGE FIRM EXPANDS

Page Air Conditioning Co., Inc., Charlotte, N. C. outlet for Worthington air conditioning units, has touched off a large-scale expansion program by moving its construction and warehousing divisions into a 40 x 200-foot Quonset building at 439 Atando Ave. Showroom and offices of the company will remain for the time being at 220 South College St.

HERE'S DATA ON TIN OK'D FOR SOLDERING

Refrigeration Equipment Wholesalers Association reports that it has recently obtained the following interpretation on the use of tin in solder under Conservation Order M-43.

Solder containing 40% or less of tin may be used for plumbing and heating; soldering containing 50% or less may be used for refrigeration work and solder type fittings. In the latter case, the purchaser must certify that the material will be used only for this particular purpose.

If 95-5 solder is required, special authorization must be obtained from the Tin, Lead & Zinc Branch of Civilian Production Administration, Washington, D.C.

FISCHER & SONS DROPS FROM REWA

Resignation of J. George Fischer & Sons, Inc., Saginaw, Mich., wholesaler of refrigeration equipment, parts, and supplies, from membership in Refrigeration Equipment Wholesalers Association has been accepted by that organization. Ray Fischer, vice president of the company, explained in his letter of resignation that the company now is selling refrigeration appliances and equipment through franchised dealers, which is in violation of REWA's constitution and by-laws.

BROWN INSTRUMENT TO HOLD THE LINE

Brown Instrument Co., Philadelphia, will continue to operate on a firm price basis in the sale of all its products, it has been announced by L. M. Morley, vice president and general sales manager. Mr. Morley pointed out that, a few months ago, Brown eliminated the escalator clause on its equipment.

CARRIER CLOSES FOR TWO-WEEK PERIOD

Carrier Corp.'s factory at Syracuse, N. Y., will be completely shut down for inventory and vacations from Saturday, August 16, up to and including Labor Day, September 1.

ACRMA DECRIES OVERLAPPING OF SHOW SCHEDULES

"Scheduling two major industry shows, the All-Industry Refrigeration and Air Conditioning Exposition and the Heating and Ventilating Exposition, within a few days of each other in two such widely separated points as Cleveland and New York is giving many prospective exhibitors a headache," F. S. McNeal, president of the Air Conditioning and Refrigerating Machinery Association has declared in a statement from ACRMA's headquarters.

Problems of duplicating exhibit personnel and equipment and the resulting heavy financial burden were cited by Mr. McNeal as being among major objections aired by equipment manufacturers at the ACRMA annual meeting held in Hot Springs, Va. "We certainly hope," concluded Mr. McNeal, "that the sponsor-organizations of principal industry shows will make some arrangement so that the difficulties which will face numerous exhibitors early in 1948 may be avoided in future years."

Mr. McNeal drew attention to a resolution unanimously adopted at the ACRMA meeting which recommended to the American Society of Heating and Ventilating Engineers, sponsors of the Heating and Ventilating Exposition, that the Heating and Ventilating Exposition be placed on a biennial basis on alternate years with the All-Industry Refrigeration and Air Conditioning Exposition.

LENK OPENS NEW FACTORY, OFFICES

Lenk Mfg. Co., Boston manufacturer of soldering equipment, has announced opening of its new executive offices and factory at 30-38 Cummington St., Boston, 15. The company's announcement expressed gratitude to both customers and suppliers for the cooperation and assistance extended following the disastrous fire which destroyed the firm's former quarters.

COMPRESSOR MAKERS MEET ON STANDARDS

Representatives from the entire refrigeration compressor industry met for the first time in the industry's history on June 30 and July 1, at Hershey, Pa., for the purpose of setting up a voluntary code of refrigeration industry standards covering condensing units up to and including 5hp. The men who met at Hershey were members of the newly named Industry Joint Engineering Committee.

Frank K. Smith, sales manager, Tecumseh Products Co., the committee chairman, reported that the initial sessions were "successful," and that they marked one of the greatest forward steps in a long program of forming voluntary minimum standards in this fast growing industry.

Mr. Smith, as chairman of the joint committee, announced its membership as follows:

Brunner Mfg. Co. (J. W. Thomas, sales manager, and Alfred D. Sullivan, chief engineer); Carrier Corp. (Mark E. Mooney, product manager, applied refrigeration, and Lars Hanson, director of development); Chrysler Corp., Airtemp Division (A. C. Newton, chief engineer); Copeland Refrigeration Corp. (Oscar H. Buschman, vice president); General Electric Co., air conditioning department, N.J. (Frank H. Faust, manager, commercial engineering division, committee secretary); General Motors, Frigidaire division (J. L. Gibson, manager, commercial and engineering); Lynch Mfg. Corp. (George C. Davis, chief engineer); Nash-Kelvinator Corp., Kelvinator division (George R. Kingston, commercial sales department); Servel, Inc., Electric Refrigeration division (Clyde Ploeger, chief engineer); Standards Engineering, Washington, D. C. (Leonard C. Bastion, recording secretary of the committee); Universal Cooler Corp., Refrigeration division (William W. Higham, chief engineer); York Corp. (Walter E. Landmesser, resale sales division, committee vice chairman, and Henri A. Brysselbout, chief commercial application engineer).

INDUSTRY COUNCIL HOLDS 1ST MEETING

Four major topics were thoroughly discussed at the first official meeting of the newly organized Industry Council, composed of representatives of four trade groups—REMA, REWA, RSES, and NARC, but few definite decisions were reached.

This meeting, which was held at the Cleveland hotel in Cleveland did, however, serve to further point up the need for such joint discussion among the various divisions of the industry.

The four chief topics on the agenda of this first meeting were: the Freon shortage; the 1948 All-Industry Show; the advisability of an off-year educational conference type of industry meeting; and fair trade practices.

In connection with the Freon shortage it was decided to invite ACRMA, SFMA, and CRMA to join the Council to add greater strength on problems of this nature. Arrangements are being made for a meeting with E. G. Robinson, general manager of duPont's organic chemical department.

As regards the All-Industry Show, REMA reiterated its decision to ask its members to refrain from exhibiting in regional shows, regardless of the sponsors. This decision, it was pointed out, is purely a matter of economics.

The possibility of holding some sort of industry educational conference on alternate years with the All-Industry Show was discussed at length, but no definite conclusions were reached.

The desirability of trying to establish in some way a set of fair trade practice rules and regulations for the industry was recognized, but whether this can be best handled by the Council or through the Federal Trade Commission was not determined.

OPEN HOUSE

An open house for both customers and suppliers was staged June 26 and 27 by Thermal Co., Inc., St. Paul wholesaler of refrigeration supplies, to celebrate the occupation of its new quarters at 2526 University Avenue.

"THE BIGGEST DATE IN '48"

E. M. Flannery of Bush Mfg. Co., new president of Refrigeration Equipment Manufacturers Association, and H. F. Spoehrer of Sporlan Valve Co., immediate past president of the association, do their bit to promote the slogan selected by REMA as the keynote of the next All-Industry Show.

* * *

"The Biggest Date in '48"—that's the way the Refrigeration Equipment Manufacturers Association is billing the Fifth All-Industry Refrigeration and Air Conditioning Exposition to be held in Cleveland January 26 to 29. And judging from the constantly growing list of exhibitors, the Show bids fair to more than live up to this advance billing.

Additional exhibitors who have signed up for space in the Fifth All-Industry Show include:

American Flange & Mfg. Co., Inc.; Baltimore Aircoil Co., Inc.; Corevent Corp.; Emery Thompson Machine & Supply Co.; Jamison Cold Storage Door Co.; LaCrosse Cooler Co.; Orley Freezers Inc.; Owens-Corning Fiberglas Corp.; The Pacific Lumber Co.; Paley Mfg. Corp.; Spencer Thermostat Co., unit of Metals & Controls Corp.; Stoddard Mfg. Co., Inc.; The Torrington Mfg. Co.

The Broquinda Corp.; Bally Case & Cooler Co.; Thiel Mfg. Co.; Fleischmann Freezer Co., Inc.; Econofreze Mfg. Co., Inc.; McCray Refrigerator Co.; Cleveland Graphite Bronze Co.; Aluminum Company of America.; Brewer-Titchener Corp., Crandal-Stone Div.

Refrigeration Equipment Wholesalers Association; National Association of Refrigeration Contractors; Refrigeration Service Engineers Society; The American Society of Refrigerating Engineers; Redmond Co., Inc.; National Commercial Refrigerator Sales Association.

Cancellation of its Show space has been made by Complete Refrigerator Supply.

LA CROSSE BUILDS NEW WAREHOUSE

La Crosse Cooler Co., La Crosse, Wis., is continuing the expansion program which it launched about a year ago by building a new 20,000-sq. ft. warehouse which is rapidly nearing completion.

This new addition to present facilities will make it possible for the company to carry a stock inventory of standard items in its line of beverage cooling and dispensing equipment, and to improve delivery schedules.

SIMPSON MEN MEET IN NORTH WOODS

First organization-wide annual sales conference to be held by Simpson Electric Co. since the war was staged at the north woods summer home of the company's president, Ray S. Simpson, at Lac du Flambeau, Wis. Every single one of the firm's representatives attended the four-day business and entertainment sessions.

Many new developments in the Simpson line of instruments were announced.

GOVT SURVEY COVERS REF'N WHOLESALERS

Members of the Refrigeration Equipment Wholesalers Association have been invited by the U.S. Bureau of Census to participate in its monthly survey of wholesalers' sales, inventories, and credits. This will provide refrigeration wholesalers with an opportunity to compare their operating figures not only with other refrigeration jobbers but also with wholesalers in other fields.

If a sufficient number of refrigeration wholesalers accept this invitation the Census Bureau has indicated a willingness to establish a separate subdivision in the survey to cover their operations.

AIRSERCO TO DO WORK ON GRUNOWS

Airserco factory facilities are now available for complete reoperation of all types of Grunow refrigeration units, Emmett C. Williams, president of Airserco Mfg. Co., Pittsburgh, has announced. He also announced that a new catalog has been prepared listing the various Grunow parts available for shipment.

Airserco is now distributing its new 8-page catalog (A-47), complete with price lists, to refrigeration wholesalers and service men.

G-E SHIFTS DUTIES OF THREE EXECS

Responsibility for General Electric Co., policy pertaining to employee relations has been assigned to L. R. Boulware, a vice president of the company. E. D. Spicer, vice president formerly charged with this responsibility, will henceforth be in charge of the company's manufacturing policy, continuing as a member of the president's staff.

Responsibility for the activities of affiliated manufacturing companies, relinquished by Mr. Boulware, has temporarily been assigned to Ralph J. Cordiner, vice president and assistant to the president.

COOLING FIRE CODE CHANGES DELAYED

Three proposed changes in the air conditioning code of the National Fire Protection Association, presented at the recent annual NFPA meeting in Chicago, have been returned to the Committee on Air Conditioning for future action.

One suggested change would permit air conditioning or ventilating systems to be designed for removal of smoke. Other changes would permit the use of corridors and stairways in public buildings and multi-family residences as supply or return air chambers. F. H. Faust of General Electric heads the NFPA air conditioning committee, which presented the proposed revisions. They will probably be considered at the association's annual meeting next year.

KRUEGER IS SEEGER EVANSVILLE HEAD

Appointment of John W. Krueger as vice president and general manager of the Evansville, Ind., plant of Seeger Refrigerator Co., has been announced by Walter G. Seeger, president. T. L. Pantz has been named assistant to Mr. Krueger.

YODER CO. CHANGES PLATE SALES SETUP

Sales and service of Hubbell-Yoder refrigeration plates are now being handled by the Refrigeration Division of the Yoder Co., Cleveland, according to John Lucas, president. Formerly the plates had been sold through Engineering Service, Inc., Cleveland.

James M. Murphy heads the Yoder Refrigeration Division as manager. Previously associated with the Burner-Valery Co. of Dayton, Ohio, Bernard L. Strang has been named sales manager of the new operation.

Alfred K. Burkell, chief engineer, is in charge of engineering and development, and William H. Hacker, general foreman, will be in charge of production.

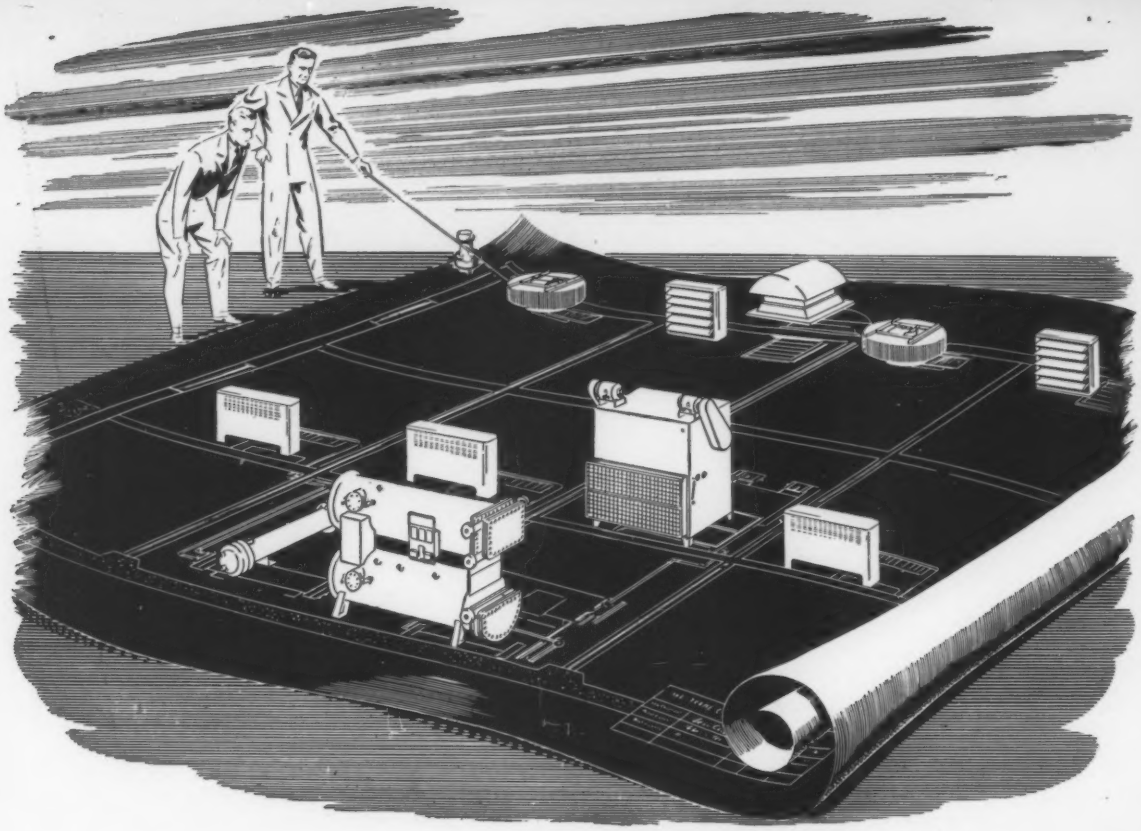
ASRE MEN GATHER IN LOS ANGELES FOR SPRING MEETING

Photos by Austin Jones, Kerotest

Left—George H. Nelson, G. H. Nelson Sales Co., "sits this one out" with J. A. Norris, Kerotest district manager in Los Angeles, and Mrs. Norris. Center—Joe Rubenson (right), Day & Night Mfg. Co., and Mrs. L. M. Burgess (2nd right), Drayer-Hanson, share a table with an unidentified couple. Right—Ed Kellie (center), American Injector Co., spins a yarn which gets a chuckle out of Roy Yantis and John Marshall of Woverine Tube Div. and Mr. and Mrs. Lawrence Roth of Refrigeration Service, Inc.

Photos by Austin Jones, Kerotest

Left—While Bill Carmody (back to camera at extreme left) prepares the lubrication for their tone tubes, several members of the industry's renowned choral organization warm up for a session of "solid" harmonizing. Left to right around the semi-circle are: H. J. Levins; C. L. Babin, Cecil Boling Co.; Herman Spoehrer, Sporlan Valve Co.; Prof. Burgess H. Jennings, Northwestern Technological Institute; and Harvey Hottel, Goddard-Hottel Corp. In right background, Harold Matteson, General Controls Co., beams approbation. Center—Warren W. Farr of Refrigeration Maintenance Corp., Cleveland, talks things over with Charley Neeson, Chrysler-Airtemp engineer. Right—In the background, Neal Templin (2nd left), Refrigeration Contractors Association of Los Angeles, jots down some notes as he listens to A. H. Bigony, Commercial Refrigeration Co., while Earl P. Wells, Industrial Refrigeration Co., and Bernard Solomon, Ralph E. Manns Co., trade comments on the program of the West Coast meeting.



From now on it's HEATING and AIR CONDITIONING Why Be Satisfied with HALF of the BUSINESS?

Job after job now calls for both heating and cooling. Since the functions are so closely allied, often being accomplished with much of the same equipment, heating and air conditioning *must* be considered together.

Architects, engineers, and owners prefer a minimum of contracts and responsibilities — so the contractor who can bid on the whole job has a much greater chance of getting it. The contractor who cannot bid on the whole job may likely lose it to one who can.

Heating and air conditioning are so closely related, from figuring the job through installing it, that it is only logical for the contractor to grow with the industry by combining heating and air conditioning. In this way, the contractor has peak business the year around, and is assured of a steadily increasing market in remodeling and modernization work, as well as in new construction. Just as the contractor needs both heating and air conditioning to make his service complete, the heating and air conditioning industries need additional contractors so that they can expand to meet the enormous demand.

Trane is the ideal source of supply for the independent contractor who combines heating and air conditioning. The complete Trane line includes every necessary product for entire heating and air conditioning systems — giving the contractor the undivided responsibility of *one* manufacturer. Trane field engineers in 85 field offices are constantly available for help and advice in any phase of heating and air conditioning.

TRANE

Manufacturing Engineers of Equipment for
HEATING AND AIR CONDITIONING

THE TRANE COMPANY, LA CROSSE, WISCONSIN • Also TRANE COMPANY OF CANADA, LTD., TORONTO, ONTARIO

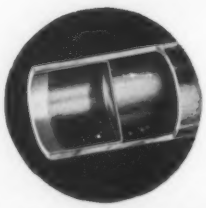
In making Restrictor Tubes

10% MAY EQUAL 34%

Precise rate of flow through capillary and restrictor tubes is necessary for continued and accurate functioning of indicating, recording and control instruments. In the production of such tubes, normal tube tolerances are far too generous. Suppose, for instance, that the specified rate of flow calls for a tube I.D. of .010": If the bore were to be increased as little as one thousandth of an inch, or 10%, the rate of flow of nitrogen under 100 lb. pressure would be increased by 34%!

Little wonder that, in the manufacture of Anaconda Capillary and Restrictor Tubes, every precaution is taken to assure dimensional precision and smoothness and cleanliness of inside surfaces. The final step in this long series of quality controls is the "Flowrator" test, illustrated above, which helps us to meet the most exacting gas or liquid flow-test specifications.

THE AMERICAN BRASS COMPANY—FRENCH SMALL TUBE BRANCH
Subsidiary of Anaconda Copper Mining Company
General Offices: Waterbury 88, Connecticut
In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*



Precision-made tubes in Copper, Brass, Bronze and Copper-Nickel Alloys; in sizes from .015" O.D. to 1" O.D. with wall thickness down to .004"; round, square, or irregularly shaped; in coils, straight lengths or special forms. Bourdon tubes, thermal expansion bulbs. And, of course, Anaconda Dehydrated Copper Refrigeration Tubes with the famous Cup Seal*.

*Patent Applied For

47413

ANACONDA

Anaconda Precision-Made Tubes

CONTRACTORS
News • Activities • Plans

While *The Refrigeration Industry* is *not* the official publication of the National Association of Refrigeration Contractors, the Editors assign this space each month to the association. The information below is furnished, for the most part, by the offices of the association and its local affiliates.

NARC May Sponsor Tests on Refrigeration Equipment

The National Association of Refrigeration Contractors is seriously considering setting up a testing procedure for refrigeration apparatus and parts, Warren W. Farr, NARC president, said in a recent address before members of the Refrigeration Contractors Association of Los Angeles and the Commercial Refrigeration Association of San Diego, both NARC affiliates.

The actual testing would be done by qualified laboratories in universities or similar institutions, Mr. Farr said. The need of such a testing procedure has been demonstrated many times in the past, he added, and results of a pilot run of one type of material, completed recently, clearly indicate the need for such an unbiased service.

Testing work, if undertaken, will not result in the specific recommendation of one type or make of equipment over another, it was indicated. Two or more tests would probably be run for each piece of equipment or material being tested, with reports of the tests being made available as NARC deems advisable.

The prime objective both of the national association and its affiliated locals, Mr. Farr asserted, is to guide the welfare of their members by helping them do a better job for their customers resulting in putting more money in the members' pockets.

Reviews Work Done

He reviewed what the national association has already done for its members, among them being timely information through regular news letters, building prestige through publicity, establishing and maintaining cordial relations with government agencies, the assembling of statistics previously not available and the handling of trade complaints.

He outlined the efforts made in trying to alleviate the shortage of Freon and told of the work of the All-Industry Council which is composed of representatives of refrigeration contractors, wholesalers, manufacturers and others engaged in the refrigeration business.

In commenting on local associations, Mr. Farr said he had been much impressed by the work being accomplished and the efforts put into it in the various groups he had visited on trips around the country. He stressed several important factors that cannot be neglected in building and successfully running a local association. In particular he mentioned the need to obtain qualified members, the great value of good public relations and publicity, the valuable assistance to be rendered safety, fire and health departments, all of which serve to enable a better job for the user.

Industry Cooperation Urged

Other activities that can be and are carried on both by the national and local associations, Mr. Farr stated, include working with other segments of the industry, particularly the manufacturers and wholesalers, through cooperative effort in solving common problems. This is not only good business, but pays tangible dividends to all concerned. He also outlined the advantages of joint efforts on labor relations and briefly reviewed the negotiations between the NARC and the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, which have been in process.

Much work needs to be done, according to Mr. Farr, in both legislative and educational fields. The former includes licensing and regulatory codes, found to be lacking in many parts of the country. Educational

A full house of southern California refrigeration contractors greeted NARC president Warren W. Farr on his recent visit to Los Angeles. The meeting was sponsored jointly by Refrigeration Contractors Association of Los Angeles and Commercial Refrigeration Association of San Diego, both NARC affiliates. Standing at the head table are: R. H. Beck, past director, Los Angeles; Mr. Farr; Neal S. Templin, executive secretary, Los Angeles association; Robert W. Noll, president, Los Angeles; T. H. Chamberlin, past president, Los Angeles; Robert L. Parker, president, San Diego association; Z. E. Jones, secretary-manager, San Francisco association; W. W. Allison, international president, RSES, and a director of the Los Angeles refrigeration men's association.

● It's easy, safe and profitable to service motor-starting capacitors "The Aerovox Way", because Aerovox listings are thoroughly cross-indexed, include both exact-duplicate and universal replacements, and are kept right up-to-date. At a glance you can pick the right type for any job. And that's what we mean when we say that Aerovox motor-starting capacitors are "Backed by the real 'Know-How'."

● **Ask Your Jobber . . . .**

Ask to see the latest Aerovox motor-capacitor catalog. Select the exact-duplicate or universal type for that job. Your live-wire jobber has an adequate stock to take care of your needs.

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Export: 13 E. 40th St., New York 16, N.Y. • Cable: 'ARLAB'
In Canada: AEROVOX CANADA LTD., Hamilton, Ont.

Directors of the Refrigeration Contractors Association of Northern California were hosts to Warren W. Farr, NARC president, at a recent meeting in the Whitcomb Hotel, San Francisco. Seated are: Z. E. Jones, secretary-manager; Mr. Farr; J. A. Scatena, president; Al Robinson, vice president; Nat Silverstone ,treasurer; L. E. Kreps, recording secretary. Standing are: R. Y. Beasley, Stanislaus-Merced Counties unit; Ed Tanner, San Francisco; R. H. Hartman, Santa Clara Valley unit; R. Quigley Watt, San Francisco; A. K. Turner, past president; A. M. MacLennan, Sacramento Valley unit; E. L. Sattler, Concord; Lee Shirar, national director, San Francisco.

work carried on by the contractors should supplement that performed by ASRE and RSES, with both of which NARC works closely.

Mr. Farr was introduced by R. W. Noll, president of the Los Angeles Refrigeration Contractors Association and was welcomed by Robert Parker, president of the San Diego Commercial Refrigeration Association. In addition W. W. Allison of Los Angeles, international president of RSES, greeted Mr. Farr on behalf of his group.

Other guests at the meeting were R. H. Beck, a former director of the Los Angeles association and formerly Pacific regional manager for York Corp., now retired; T. H. Chamberlin, a former president of the Los Angeles association, now operating a refrigeration wholesale business, and Z. E. Jones, secretary-manager of the Refrigeration Contractors Association of Northern California.

Visitors in attendance included, E. J. Houser of the Karlson Machine Works, Phoenix, Ariz.; A. M. Fenwick of E. R. Benedict Co., Cleveland; Charles E. Harris of Harris Refrigeration Co., Boston, Mass.; H. D. Andress of Associated Engineering Co., Cleveland; Ed Kellie of American Injector Co., Detroit; and F. P. Neff, Tupman-Thurlow, Chicago.

* * *

Contractors Warned Not To Overstock

A warning to refrigeration contractors not to allow their inventory situation to get out of line was sounded by Warren W. Farr, NARC president, in his talk recently to members of the Northern California Refrigeration Contractors Association in San Francisco.

Summarizing his experiences during his extended tour, Mr. Farr warned the group that he found a widespread tendency to over-stock on certain materials. This condition gives the manufacturer an overly optimistic picture of his potential market, he said, and if continued will lead to glutting the market on certain products with subsequent inventory losses.

Could Be Ruinous

He urged all industry members to resist any tendency toward over-stocking, because "if a few firms start to 'dump' their merchandise, everyone else will be forced to follow suit." This, he declared, will lead to ruinous price-cutting.

Mr. Farr told the group that NARC was considering setting up a testing laboratory at two universities where all classes of equipment and parts could be judged impartially for quality and adherence to standards.

More than 100 members and their ladies attended the dinner meeting honoring Mr. Farr's visit to San Francisco. The NARC president praised the work being accomplished by the local group, and sat in on a four-hour directors' meeting at which plans and accomplishments in the fields of industry regulations, labor relations, apprenticeship training and other activities were discussed.

Presiding at the dinner-meeting

was James A. Scatena, of Scatena-York, San Francisco, president of the northern California group. Mr. Farr was introduced by Lee Shirar, national director of NARC and president of Shirar-Young, San Francisco. Nat Silverstone, president of Silver-Stahl, Oakland, acted as toastmaster, while general arrangements were under the direction of Zed E. Jones, secretary-manager.

JENNINGS HEADS ARKANSAS ASSOCIATION

Zack O. Jennings was re-elected president of the Arkansas Commercial Refrigerator Association, Inc. at that group's second annual meeting in Little Rock recently. Mr. Jennings also is a director of the National Commercial Refrigerator Sales Association, with which the Arkansas association is affiliated.

Paul Allen was elected vice president; Raymond Kordsmeier was re-elected secretary and given the additional post of treasurer. Herman Cumnock, Pat J. Kerby and Mr. Allen were re-elected directors. New directors are Bill Nolan and Jake Sadler.

NEW DETROIT SCHOOL HAS COOLING COURSES

A new course in thermodynamics and advanced air conditioning to be offered at both day and evening sessions has been announced by the Detroit Air Conditioning Institute. Evening classes were scheduled to start July 8 with full-time day class commencing on August 18. George H. Clark is director of the institute.

The course will cover elementary thermodynamics, heat engines, heating, refrigeration and air conditioning. It is designed for men in the heating, refrigeration or air conditioning business or for men with a high school education or better.

NEW CONTRACTOR FIRM IN SOUTH DAKOTA

Interstate Refrigeration Service Co has recently been opened in Rapid City, S. D., by Paul Brzica.

BUY FROM YOUR REFRIGERATION WHOLESALER

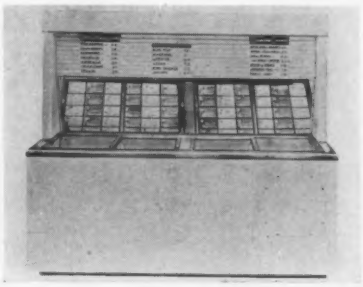
STYLED FOR SALES
Built for Performance

- **All Steel welded construction**
- **Hydroleened for vapor seal**
- **Built-in 4 wall refrigeration**
- **Thermopane sliding glass doors**
- **Polished stainless-steel top**
- **Full vision display mirror**

Manufactured to the Highest Standards

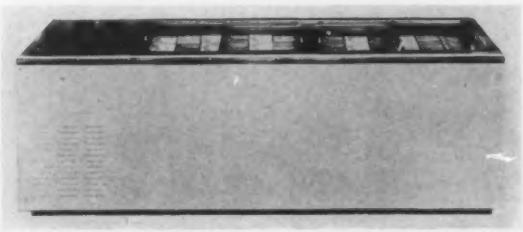
FLEISCHMAN CABINETS

are Right in Quality and Right in Price



Model 520 Remote cabinet—20 cubic feet—length 80 inches

*Model 510A—self contained—10 cubic feet—length 65 inches



Model 520A self contained cabinet—20 cubic feet—length 101 inches

*This style cabinet also available with special built-in evaporator for high temperature operation

Several Territories Still Available

FLEISCHMAN FREEZER CO., INC.

450 S. Boulevard, Bronx, New York

FOUR-FOLD ECONOMY . . .

Continued from page 49

length of the hardening room, from the production department to the loading platform. In this way it can be used for moving hardened ice cream to the loading dock while freshly frozen products are transferred into the hardening room from the production department.

Temperature in the hardening room is maintained at approximately —20 F by means of two Carrier 15Q7 floor mounted cold diffusers which are defrosted by means of water sprays. Each of these units is equipped with a centrifugal fan driven by a 3-hp motor and is capable of delivering —25 F air at the rate of 10,000 cfm. This air is then directed through fabricated sheet metal ducts and distributed throughout the room by means of four Connor "Kno-Draft" air diffusers. Designed to harden 3,000 gallons of ice cream in 12 hours, the room has, in actual practice, been accomplishing this job in 5 to 6 hours, according to Mr. Race.

Entrance to the sub-zero room is through an anteroom which is held at 38 F by two Carrier 15M7 ceiling mounted cold diffusers connected with an individual 3-hp Carrier 7K3 condensing unit which is separate from the main refrigeration system. This room is used for storage of flavors and raw materials. It also acts as a buffer between normal plant temperatures and the sub-zero temperatures of the hardening room, minimizing the rate of heat transfer around the door and preventing the formation of ice around the sill.

Units Are Interconnected

The two compressors on each stage of the main refrigeration system are interconnected and are operated with cylinder capacity reduction on each compressor so as to utilize only what refrigerating capacity is required at any given time. This economy of operation is furthered by thermostatic controls located in the various production stages to govern the amount of refrigerating effect delivered.

Chief economy effected by the two stage system of operation results from the fact that the capacity of the second stage is materially increased by close control of evaporator pressures. This considerably increases the system's efficiency without raising operating expense.

Heat Interchangers Used

Both stages of the system have liquid-to-suction heat interchangers. Both stages are equipped with receivers, but the receiver is used for pump-down only in the low temperature (F-22) stage. All copper connections in the system are silver soldered.

Indicating instruments and automatic controls are located on an enclosed panel board. This panel board is built into one wall of the compressor room, but is provided with a removable back for ready access. Cutler-Hammer starter and re-set switches were used.

Refrigeration for counters, beverage boxes, and display cases in the dairy's retail store, which is connected to the dairy plant, is provided by individual condensing units. This is believed to be more economical than trying to operate them from the dairy's main refrigeration system.

LET THIS DISPLAY REMIND YOU

. . . that THAWZONE and TRACE are two "musts" in protecting refrigeration systems and keeping them functioning perfectly with the minimum of attention.

THAWZONE, active, always circulating, destroys moisture chemically, economically, quickly and effectively, in new, reconditioned or old systems.

TRACE is the highly effective refrigerant leak detector with the vivid red color that quickly spots leaks in any refrigeration system . . . new, old or reconditioned.

You will see this attractive display on the counters of leading refrigeration equipment wholesalers throughout the country.

HIGHSIDE CHEMICALS COMPANY
195 VERONA AVE., NEWARK 4, N. J.

RESEARCH
EXPERIENCE
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KRAMER

OUR TRADE MARK IS IMPORTANT TO YOU

• • • • It means you are getting the best that Engineering and scientific testing can offer, combined with superior craftsmanship and 33 years of experience in the field of refrigeration and heat transfer. It is wise to insist on Kramer.

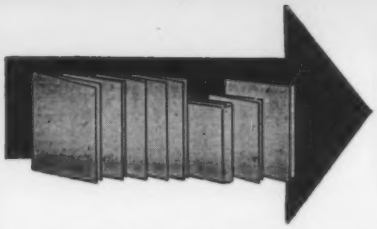
KRAMER TRENTON CO. TRENTON 5, NEW JERSEY

Faster, Accurate
DRILLING
in MASONRY
with the
CYCLONE
Carbide Tipped
ROTARY BIT

The New, Easy Way with the new CYCLONE Masonry DRILL, fastest, most accurate drill ever made. For concrete, brick, tile, slate. Do your job 4 to 8 times faster, without effort, with the drill that stays sharp longer and outlasts ordinary steel bits 50 to 1. Fits hand brace, electric drill or drill press.

Come individually packaged or in handy kit of six popular sizes

NEW ENGLAND CARBIDE TOOL CO., INC.
CAMBRIDGE 39, MASS.



Useful Literature

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the numbers of the items you wish to receive, and send it to THE REFRIGERATION INDUSTRY, 1240 Ontario Street, Cleveland 13, Ohio. Your requests will then be forwarded directly to the companies concerned.

182—Valve Price List . . . An 8-page bulletin covering revised list prices (effective June 20, 1947) of copper tube valves manufactured by Northern Indiana Brass Co. Various types of valves are illustrated and specifications, as well as prices, are listed.

183—Accessories . . . A 4-page catalog illustrating and listing specifications of the Fine line of "Rapid" dehydrators, dehydrator indicators, charging hoses, and "Seamless" refrigerant cylinders. A full-page digest of ICC refrigerant cylinder regulations is featured. Available from Fine Products Co.

184—Cold Plates . . . A 12-page manual covering design, application, and installation of plate-type evaporators in trucks of all types. Illustrations show structural details, applications, and installation techniques. A table simplifying selection of truck plate requirements also is featured. Available from Kold-Hold Mfg. Co.

185—Rubber Belts . . . A 12-page catalog devoted to selection and maintenance of rubber transmission belts. This guide to the application and care of flat rubber belting features a wealth of tables and other technical data. Available from B. F. Goodrich Co.

186—Brazing Alloy . . . A 4-page bulletin (No. 15) describing "Easy-Flo 45" a recently announced silver brazing alloy. Features are listed and applications are illustrated. Available from Handy & Harman.

187—Cooling Units . . . A 12-page catalog covering the two complete lines of "Latenaire" and "Sensaire" conditioning units developed by American Coils Co. for both dry and humid climates. Remote and self-contained models of both floor and wall types, as well as a duct-type coil for use in conjunction with any forced air conditioning system, are illustrated and described.

188—Low-Temp Insulation . . . An 8-page booklet devoted to a discussion of "Foamglas" insulation for low-temperature rooms. A guide to insulation thickness, descriptions of typical applications, and an explanation of correct erection methods are featured. Available from Armstrong Cork Co.

189—Tools . . . All pliers, adjustable wrenches and pipe wrenches now offered by Plomb Tool Co. are described and illustrated in this company's new bulletin No. 4728.

190—Duct Hangers . . . Twenty-four ways to use "Hexdall" duct hangers are illustrated and described on the chart which features this 4-page folder. Available from A. M. Hexdall Co.

191—Hand Truck . . . A specification sheet on the Model No. 200-BRR-A appliance truck manufactured by Orangeville Mfg. Co. Features and uses are liberally illustrated. Prices as well as specifications are listed.

MODEL 2127
12.5 Cu. Ft.
Capacity
about 625 lbs.

Write today for technical details and sales advantages of this leader among Farm and Home Freezers.

A precision engineered freezer that offers longer service-free operation at lowest power costs.

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HEALTHFUL LIVING THROUGH FROZEN FOODS

BUY FROM YOUR
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Casting...?

Don't cast around for quality in refrigeration supplies. Order genuine Kelvinator-made parts from one of 50 Kelvinator depots nearest you.

Protect your service reputation with the *best,* for each Kelvinator-made replacement part is produced with the same professional skill that has made Kelvinator products outstanding for *quality* through more than 30 years in refrigeration. And you can be assured of prompt service whether you order over-the-counter, by mail or by telephone.

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Leadership
in DESIGN
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and in SERVICE

One of these men is always within a sleeper jump or a five-hour plane trip . . . eager to share with you the know-how and the know-why that have developed America's finest-line of commercial refrigerator hardware.

HOME OFFICE
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ARNOLD DESSAU
Export, except Cuba
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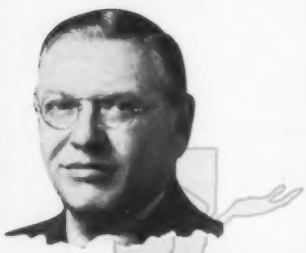

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"WHEN THEY TRIP, THEY GRIP"

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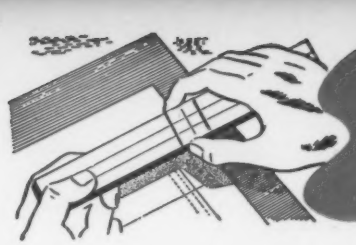
Southeastern States
507 Kennesaw Ave.
Marietta, Ga.

Grand Rapids Brass Company

Makers of Dependable Refrigerator Hardware for over 40 Years

Grand Rapids 1, Michigan



New Products

For further information on any of these products, simply list the key number at the head of each item on the special post card enclosed with this issue.

Spray-Booth Coating • • P-114

Product: "Liquid Envelope" peelable plastic film for coating spray booths.

Manufacturer: Better Finishes & Coatings, Inc.

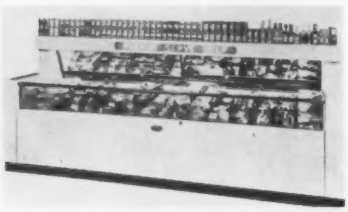
Features: Peelable plastic film in a special formulation for coating spray-booths. Sprayed on clean booth in a film .002 to .005 inch thick. When booth is ready for cleaning, this coating is peeled off right down to the metal in large sheets, carrying with it all accumulated paint, lacquer, and spray-dust. 6 x 6-foot booth can be stripped clean in less than 5 minutes, and recoated in same time. No scraping required.

Open Display Case • • P-115

Product: Open-type display case, at present available only in 10-foot length.

Manufacturer: Sherer-Gillett Co., Marshall, Mich.

Features: First open serve-self case offered by this company, this unit has reflecting mirror which adds to



attractiveness of display but is out of line of vision when customer is making product selection. Refrigerated with eutectic plate coils. Sliding doors permit service from rear of case. Fluorescent lighting. "Twindow" front glass 10 inches high. Porcelain baffles. Three-step adjustable wire shelves. Non-refrigerated space 9 inches high runs full length and depth of case, with rear opening. White porcelain finish or welded steel frame.

Changeable Signs • • • P-116

Product: "U Change Neon", a new patented Neon sign product with replaceable letters.

Manufacturer: Interchangeable Neon Letters, Inc., Detroit, Mich.

Features: Instead of a whole new Neon sign to advertise different items, all that is necessary is to

change the Neon copy by simply replacing or rearranging as many individual Neon letters, figures, or novelties as necessary. A whole new Neon display can be made in a matter of seconds. As many as six different Neon colors can be used in one display. No static or radio interference. Low operating cost.

Upright Freezer • • • P-117

Product: Upright style home freezer.

Manufacturer: Tyler Fixture Corp., Niles, Mich.

Features: Upright cabinet with 9 cu. ft. capacity. Designed to meet the demands of small homes or apartments where space is at a premium

GET THE JOB OPERATING FASTER!

NEW PREMIER KIT

RECONDITIONS . . . Recessed or Flush Valve Ports in MINUTES!

Now you can easily grind, finish and test recessed or flush valve seats (either piston or flapper jobs) . . . get' em back into action *faster* . . . and make satisfied customers! No more tiresome hand-lapping.

The Premier
SELF ALIGNING VALVE GRINDING KIT

COMPLETE SET PACKED IN HANDY CASE

Contains self-aligning tool holder . . . 6 abrasive wheels for roughing . . . 6 cast iron lapping disks . . . two 3" cast iron lapping blocks . . . 1 wheel dresser and 1 valve tester. Complete instructions enclosed for handling ½" to 1¼" valve seats.

See it at your jobber!

THE PREMIER CO.
891 PARK AVENUE
BALTIMORE 1, MARYLAND

and food freezing needs are not large. This unit is one of five new models recently announced in the "Harder Freez" line. Other models include a double-chest type home or farm freezer and three new utility freezers for commercial use.

Concrete Drill Bits • • P-118

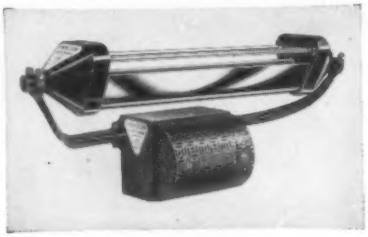
Product: A series of drill bits for boring holes in concrete, tile, brick, or marble.

Manufacturer: Rotary Concrete Drill Co., Pasadena, Calif.

Features: Can be used in connection with any standard automatic drill. Diamond dressed cutting tips set in blunt end of bit at an angle permitting use of extreme pressure in cutting through hard rock. Sizes range from ¼ to 2 inches in diameter. Four cutters at proper angle are in outside rim of bits of ¾-inch diameter or larger, making them easier to start and to use. Smaller bits have three cutters. Bits clean holes as they drill.

Germicidal Lamp • • • P-119

Product: Germicidal lamp and ozonator.



Manufacturer: Viragon Co., Kansas City, Mo.

Features: Functions continuously, giving over-all protection from floor to ceiling throughout the room or cooler. Destroys harmful airborne bacteria, as well as deodorizing the air. Combines an ultra-violet ray Sylvania electronic lamp and a built-in "sanitizer" said to be the only brush-type ozonator yet developed. Compact unit is available on stand or wall bracket, and is adaptable for permanent or portable installation. Operates on 110/120 volts 60 cycles a.c. and plugs into an ordinary light socket. Requires only 25 watts. Little or no upkeep; service life guaranteed.

Mercury Switches • • • P-120

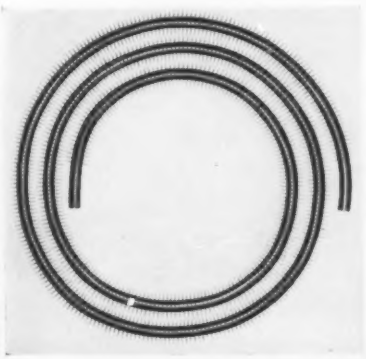
Product: 5 to 20-amp mercury switches.

Manufacturer: Mercontrol, Inc., New York City.

Features: Hermetically sealed by a patented process of fusing metal to ceramic, these switches are especially adapted to explosion-proof areas. Metal enclosure provides safe operation in atmospheres where switch-sparking constitutes a danger. Provide mercury-to-mercury contact without arcing, pitting, or burning. Will operate at 110 and 220 volts, a.c. or d.c., in an ambient temperature of 100 C. Can stand overload of 400% for short periods. Can be easily installed in standard "cartridge-fuse" holders.

Pancake Coils • • • • P-121

Product: "Finco" flat or pancake coils formed out of tubing with serrated fins as high as ⅝ inch.



★ Federal ADD-A-PANEL
All Steel Clad
WALK-IN REFRIGERATOR

Sections pre-fitted. Simple to assemble, move or enlarge

•

Standard door panel may be placed anywhere around the box

Designed to meet today's Food Storage Demands...

Only Federal Offers These "Peak of Protection" Features:

Insulated panels can be furnished to add service or sliding doors for display service unit • Porcelain trim can be added for sparkling beauty for your shop • Front panel can be furnished with four or eight sliding doors for self service • A 33 cu. ft. quick freeze cabinet can be installed in any Federal walk-in.

Write for literature and dealer prices

Federal REFRIGERATOR MFG. CO.
COMMERCIAL REFRIGERATORS ★ WAUKESHA, WIS.

Manufacturer: Fintube Coil Corp., Alhambra, Calif.

Features: New bending technique permits formation of coils without crushing tube or distorting fins. These flat coils are available in either ferrous or non-ferrous metals and in a wide range of tube sizes, fin heights, fin spacing, and coil diameters. It is claimed that coils of this construction effect substantial savings in fabrication of condensers, evaporators, unit coolers, and other types of extended-surface equipment.

Dehydrator Kit • • • • P-122

Product: Kit designed to enable service men to carry in their cars a complete selection of dehydrators and replacement parts.

Manufacturer: Fine Products Co., Chicago.

Features: Measures only 8½ inches square and 18 inches high. Hinged lid and side provide ready access to the 18 dehydrators in six different sizes ranging from 5 cu. in. to 50 cu. in. Two sliding drawers are provided for replacement adapters and gaskets. Flat folding handles for carrying. Kit is made of 20-gauge metal, and is supplied only complete with stock of "Rapid" dehydrators. All dehydrators are of the refillable type.

Cold Zone Tester • • • P-123

Product: "Fifty-Fifty" tester for quick, accurate check of operating temperatures of refrigerating equipment.

Manufacturer: J-B-T Instruments, Inc., New Haven, Conn.

Features: Tests cold zones in range from 50 F to —50 F and gives continuous reading outside the equipment being checked. Temperature element small enough to be inserted in hard-to-reach places has 14-foot lead of a practically indestructible plastic. This lead stays flexible even at —50 F and is so thin it does not interfere with weatherstrip. Unit is compact, simple to use, moderately priced. Operates off ordinary flashlight battery. Bulb is replaceable.

BUY FROM YOUR REFRIGERATION WHOLESALER

If You Employ PRESSURE— You Need SAFETY HEADS!

A SAFETY HEAD is your Sentinel of Safety against over-pressure . . . tailor made to fit your exact requirements.

Wherever you have a liquid or a gas under pressure . . . 5 up to 25,000 psi, Black, Sivalls & Bryson SAFETY HEADS can be installed to give you instant pressure relief. Here's a simple, positive pressure "fuse" that bursts in tension at a pre-determined pressure and temperature. The only pressure relief device that provides a wide, full-throated opening when instant venting is necessary. Your soundest protection against costly losses in life and property from explosion. Proved in service in thousands of plants. Don't let another day pass without putting SAFETY HEADS to work for you!

FAST, FULL-THROATED bursting of rupture disc provides positive, dependable pressure relief . . . easily and quickly replaced.

Write today for complete details advising our engineers of your pressure vessel installations. Address the Special Products Division, Executive Offices, Black, Sivalls & Bryson, Power and Light Building, Kanas City 6, Missouri.

Foreign Inquiries Invited

BLACK, SIVALLS & BRYSON, INC.
KANSAS CITY — EFFICIENCY — RELIABILITY — OKLAHOMA CITY

Cable address: Black, Kansas City, U. S. A.

(24)

SUB-ZERO'S NEW
CUBEMAKER

ALREADY IN DEMAND!

A sure-fire seller is Sub-Zero's new, smartly designed Cubemaker. Sturdy stainless steel and aluminum construction, the Cubemaker will easily, economically supply 1000 ice cubes daily. Ideal for hotels, taverns, restaurants. Available in a variety of baked enamel finishes. Write today for information.

SUB-ZERO FREEZER CO., INC.
MADISON, WISCONSIN

TEMPRITE
2-TEMPERATURE
VALVES..

GIVE YOU

- Wide range of adjustment.
- Close temperature control.
- Rugged construction.
- Quick and easy adjustment.
- Large gas capacity. Low pressure drop.
- Extremely sensitive operation.
- 5 models. Capacities up to 250,000 btu.

TEMPRITE PRODUCTS CORP.
41 PIQUETTE AVE. • DETROIT 2, MICHIGAN

The Brush You Need is Right at Hand in

Pure Carbon
BRUSH KIT NO. 4

Time wasting searches for the right carbon brush are eliminated with Pure Carbon Kit No. 4—the Kit that contains 36 sets of popular brushes to fit 90% of all refrigerator motors. Each type of brush is packed in a separate, easily removable compartment for convenience in selection and keeping track of stock The Kit itself is a heavy, metal-edged box which will stand plenty of wear and tear. For complete information, write today for catalog 42-B.

PURE CARBON COMPANY
449 HALL AVE. • ST. MARY'S, PA.

HONORARY DEGREE

Richard P. Brown (right), chairman of the board of Brown Instrument Co., receives the honorary degree of doctor of engineering from Dr. James Creese, president of Drexel Institute of Technology. The presentation was made at the Institute's commencement exercises.

TEXAS ENGINEERS HEAR COOLING TOWER DATA

"Evaluating Cooling Tower Performance for the Process Man" was the very interesting subject presented at the May meeting of the Dallas-Fort Worth section of the American Society of Refrigerating Engineers. Carroll E. Gregg, district engineer of the Houston office of Fluor Corp., Ltd., presented the paper which was prepared by Mr. James G. DeFlon, chief cooling tower development engineer for the company. Mr. Gregg ran a series of slides showing various types and construction of the large industrial type towers manufactured by his company.

TUCKER JOINS ORLEY AS PROMOTION MGR.

John W. Tucker has been appointed sales promotion manager of Orley Freezers, Inc., Detroit, according to Charles W. Stillman, executive vice president. Mr. Tucker has spent 10 years with General Motors in various public relations and sales posts, and more recently was engaged in dealer distribution activity for Packard Motor Car Co.

N. Y. COMMERCIAL ASSN. JOINS NATIONAL GROUP

Affiliation with the National Commercial Refrigerator Sales Association has recently been approved unanimously by the Commercial Refrigerator Distributing Association of New York City.

Continued from page 35

customers which persistently procrastinate in their payments. "We pay our bills promptly," he tells the customer, "but in order to do that we have to receive your payments on time." The effectiveness of this argument in stimulating slow accounts has been surprising, he reports.

Another major factor in the success of this organization has been the firm's excellent location at 408 N. Euclid Ave. The business is housed in a new 38 x 45 foot building situated on the western edge of town right on one of the principal highways leading into the heart of Michigan's popular hunting, fishing, and vacation country. This bring a tremendous amount of traffic right by the firm's front door, and makes it possible for the display window which runs the full width of the store to do a real selling job.

"No thanks—I'm waiting for a warm seat. I work at the Frigid-Freeze locker plant."

The amount of walk-in or drive-in trade which results from this strategic location has been a decided factor in helping the new enterprise to get firmly established in its first year of operation, Mr. Dardas declares. Many people owning summer homes or businesses in Michigan's upper Peninsula, which is relatively sparsely settled and where commercial refrigeration dealers often are few and far between, have become good customers of the Dardas firm simply through having been favorably impressed with the appearance of the firm as they drove by.

The firm's showroom, in which products are clearly visible from the highway, is well lighted at night, so it actually is on duty 24 hours a day as a "silent salesman" for the company's products and services.

Weekly display ads in local newspapers also have been a big help in getting this contracting organization started off on the right foot, Mr. Dardas points out. These advertisements lay heavy emphasis on the fact that any piece of refrigeration equipment is no better than the service which backs it up. To prove that they themselves stand ready, willing, and able to handle their customers' troubles, the Dardas firm maintains around-the-clock service facilities, with the firm's telephone bridged to Mr. Dardas' home during the hours when the store is closed.

Mr. Dardas feels that there is no really satisfactory way of checking the effectiveness of the newspaper advertising. He dropped the ad out one week, however, just to see if the lack of advertising would be reflected in the firm's business volume. It may have been sheer coincidence, he ad-

NIBCO ½" TEE-1928
WEIGHT 18 OUNCES
PRICE 76 CENTS
NIBCO ½" TEE-1947
WEIGHT 2 OUNCES
COSTS ONLY
one-fifth AS MUCH
NIBCO
Wrot Fittings
OF TODAY
MAKE COPPER PLUMBING AVAILABLE
IN LOW COST HOUSING . . .
HERE'S the amazing story of NIBCO engineering genius and the benefits it has brought to you through twenty years of continuous development and research. When NIBCO introduced copper plumbing in 1928, a ½" Tee weighed 18 ounces and cost 76 cents. Today it weighs only 2 ounces, yet it is stronger, easier to handle and better in many ways . . . and even in an inflated copper market, it still costs less than 20% of the original price! NIBCO WROT Fittings are made by patented processes which assure absolute uniformity with close tolerances accurately maintained. Specify NIBCO WROT Fittings on all jobs. They make stronger joints . . . and every copper installation brings you more business.
NORTHERN INDIANA BRASS COMPANY • ELKHART, INDIANA
MORE PROFIT · EASIER WORK · BETTER TOO

SEP-RETURN*
*Trade Mark Reg.

AUTOMATICALLY . . .
Separates oil from refrigerant
Returns oil to compressor
- Simple to install
- Filter-separator, easy to clean—Easily replaced
- Vast improvement in operating efficiency
- Outstandingly low priced . . . List price $8.00

IMMEDIATE DELIVERY
ORDER FROM YOUR LOCAL JOBBER

WABASH
MANUFACTURING CO.
2642 S. Michigan Ave. Chicago 16, Ill.

mits, but the volume of new inquiries definitely did drop off, so the advertising program was reinstated and has been continued every week since that time.

One of the company's two salesmen operates on a straight 10% commission basis, while the other operates on a salary plus 2% commission on sales. Service men also are salaried employees, but are paid in addition 2% of the list price of all new parts they install. The salesmen cooperate in splitting time on the sales floor, so that one man is on duty in the store at all times.

How Mr. Dardas and Mr. Harris came to set up their partnership is really a story in itself, for Mr. Harris had no previous experience whatever in the refrigeration field.

Mr. Dardas, on the other hand, once worked in the service department of the local Kelvinator distributorship, and from 1939 until the Dardas-Harris firm was organized he had operated his own service and installation business out of his own home.

Despite these differences in background, however, the two men had been neighbors and close friends for many years.

So the partnership deal just naturally evolved when Mr. Dardas started talking to his friend about expanding his operations by entering the sales and contracting field. Mr. Harris, who had been looking for an opportunity to get into business for himself, said "why not?". So the upshot of this conversation was that Mr. Dardas totaled up the value of his existing inventory in parts, supplies, and equipment, Mr. Harris put up an equivalent amount in cash, and the new enterprise was born.

To announce this new venture, Mr. Dardas sent a circular letter to all of his previous service contacts, totaling nearly 200 active accounts, informing them that the new concern would be able to serve them more completely than ever before.

DESIGNED to meet wine producers' needs for improved methods of finishing and conditioning wines in the shortest possible time, a new stainless steel shell-and-tube wine cooler called "Quick-Cool" has been developed by Oscar Krenz, Inc., Fresno, Calif.

Based on a newly-applied principle of ammonia refrigeration, the new wine cooler is a shell-and-tube heat exchanger, fitted with solid stainless steel tube sheets and containing necessary surfaces of stainless steel seamless tubes to meet purchasers' requirements. To attain most efficient heat transfer, a full-flooded system is used.

The "Quick-Cool" unit has been engineered for flexibility, with two basic designs capable of handling any wine cooling job up to 5,000 gallons per hour.

One design is being constructed to handle 500 gallons per hour, and the other will handle 1,000 gallons per hour. Piping arrangements are so laid out as to allow various multiples of these capacities to be set in parallel, thus meeting specific vintner requirements.

This basic characteristic of the installation enables vintners not only to run two or three types of wines at one time through each of the various units, but further, on a re-circulation cycle, to match their cooling loads to that of the most efficient operating suction pressure of the ammonia compressor, by varying wine flow through the units.

NOW!
FORGED FLARE NUTS AND FITTINGS
Prompt Shipment on Most Items
Electrimatic
2100 INDIANA AVE
CHICAGO 16 ILLINOIS

2 GOOD NAMES ARE BETTER THAN ONE
REVERE METALS help keep your food fresh
If food could think, what do you suppose it would think about while waiting in the nice, cool, safe and sanitary refrigerator? It might worry about what would happen after it is taken out, but it certainly could not fear that anything unpleasant would occur while it is inside, where the low temperature puts it into a comfortable, healthy sleep. For the remarkable benefits of refrigeration Revere can take part of the credit, because it supplies so much copper and brass and bronze to refrigerator manufacturers. As much as 12½ pounds of copper and its alloys may be used in a single box, much of it in the form of tube and sheet. Tube is of course essential to the new type in which the refrigerant circulates in the walls. Quick conduction of heat, easy workability, and resistance to corrosion are three of the many advantages of copper and copper alloys that make them ideal for refrigeration applications. Brass and bronze are used for evaporators, for automatic control mechanisms, and for hardware, to assure long, trouble-free service . . . To manufacturers of refrigerators and freezing units for home and commercial use (and to builders and operators of commercial ice plants as well) Revere offers mill products such as sheet and plate, roll and strip, rod and bar, tube and pipe, extruded shapes and forgings in copper and its alloys. Mill products in aluminum and magnesium alloys are also available. The Technical Advisory Service will gladly cooperate with manufacturers in such matters as selection, specification, and
REVERE
COPPER AND BRASS INCORPORATED
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, New York

YOUR NAME AND REVERE DRYSEAL COPPER TUBE

REVERE'S national advertising in The Saturday Evening Post, Business Week, Fortune and many other widely-read publications constantly tells your customers that the name Revere on the products you use is proof of their high quality. Thus Revere not only gives you the finest dehydrated copper tube — dry, clean, dead soft and sealed—but backs it up with hard-hitting promotion. Your good name plus the name Revere is a sales-getting combination that's hard to beat.

Revere Dryseal Copper Refrigeration Tube is made of deoxidized copper (99.9+% pure) and is kept oxide-free by special processing methods. Each length is carefully dehydrated during manufacture, and then immediately sealed at both ends to keep all moisture and other foreign particles out. Because Revere Dryseal is dead soft, it is easy to bend and will not split when flared at the ends.

Revere Dryseal Copper Tube is made for refrigeration, air conditioning, heat control and other services. It comes in sizes from ⅛" to ¾" O.D., with .035" wall, and is standard in 50-foot coils.

You can get prompt delivery on Revere Dryseal from leading distributors throughout the country.

TO MANUFACTURERS — There is a Revere Distributor near you who is prepared to give you cooperative service on your needs for Revere Copper Tube, Brass Rod, Welding Rod and other standard Revere products.

REVERE

COPPER AND BRASS INCORPORATED

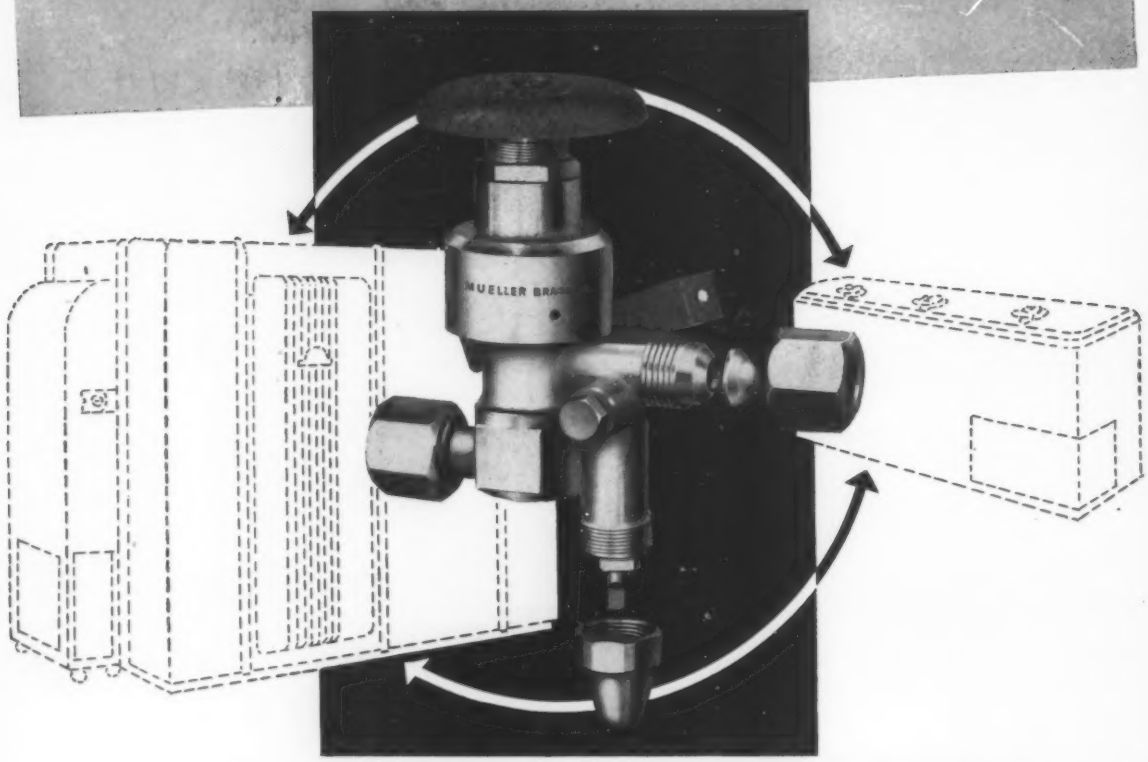
Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.

MUELLER BRASS CO.

Two-Temperature Control Valve



● The Mueller Brass Co. Two-Temperature Control Valve is used in a refrigerating system where one compressor cools more than one unit and where it is desirable to more accurately control temperatures in the various units. It closely maintains a pressure in the coil at a level above the operating pressure of the machine.

An exclusive feature of this valve is the provision for by-passing the automatic valve in case it is desired to pump all the refrigerant from the coil. By means of this by-pass arrangement, the automatic valve can, in effect, be cut out of the system and the coil opened directly to the suction line. Provision is also made for the attachment of a pressure gauge while the line is under pressure.

There is no limit to the number of valves that can be installed on one system. When several boxes are to be maintained at different temperatures, the Two-Temperature Valves are installed on the higher temperature units.

An oval handle, which is independent of the automatic closing feature, provides manual closing and eliminates the use of a separate line valve.

Valves are furnished 1/2" and 5/8" flare.

MUELLER BRASS CO.

PORT HURON, MICHIGAN

EQUIPMENT CAPACITY . . .

Continued from page 42

Water coils are also available in what is known as one-half and one-third circuiting. In these coils, only ½ or ⅓ the number of tubes in the first row are connected to the inlet header. In half-circuit coils, the water makes two passes in travelling through each row of tubes, passing down half the number of tubes and returning through the other half. Likewise, for a one-third circuit coil, there are three passes of water per row of coil. A 6 row half-circuit coil, therefore, will have 12 passes of water from inlet to outlet header, and a 6 row one-third circuit coils will have 18 passes. The need for such a large variety of circuiting arrangements will become apparent as we proceed with a discussion of water velocity and water friction.

WATER VELOCITY THROUGH COILS: The rate of flow of water through coils is generally expressed in gallons per minute *(gpm)*, while the velocity through the tubes of the coil is usually stated in feet per second *(fps)*.

For a definite rate of water flow through a coil of given number of tubes high, the velocity of water through each tube of the coil will be inversely proportional to the number of tubes leading out of each header. Thus, the velocity of water through a half-circuit coil will be double the velocity of water through a standard or single-circuit coil, while the velocity through a double circuit coil will be half the water velocity through a standard coil. With half-circuit coils, therefore, only 50% of the quantity of water will be necessary in order to produce the same water velocity as would be required with a standard coil. Similarly, with double-circuit coils, twice the amount of water will be required. Therefore, when the supply of water available is small, half-circuit coils are in order; when the supply of water is large, double-circuit coils have an advantage.

The actual water velocity through a coil of given construction depends upon the tubular area of cross section available to the specified rate of water flow. For coils constructed of ⅝" tubing of .031" to .035" wall thickness, the water velocity may be determined from the following formula:

FORMULA 11

$$v = \frac{gpm \times 1.3}{n}$$ where,

v = water velocity, fps
1.3 = velocity in fps of one gpm passing through one coil tube circuit
gpm = water rate of flow, gallons per minute
n = number of tubes per header

Thus, if there are 20 tubes leading out of the inlet header, and the rate of flow is 50 gpm, the velocity of the water in each tube will be

$$v = \frac{50 \times 1.3}{20} = 3.25 \text{ fps}$$

Water velocities through coils may also be determined from charts put out by coil manufacturers.

WATER FRICTION IN COILS: Since the heat transfer coefficient (K factor) of a water coil increases with the velocity of the water flowing through the coil (see Figure 9), it is advantageous to provide the greatest water velocity practicable. The rate

Temprite

Liquid cooling models have capacities ranging from 3 gallons per hour up to 2,200 gallons per hour.

TYPICAL APPLICATIONS

Industrial or Drinking Water Cooling
•
Chemical Cooling
•
X-Ray Processing
•
Photographic Processing
•
Beverage Cooling

Get acquainted with the wide profit possibilities in Temprite liquid coolers. 18 Temprite models are adaptable to virtually all cooling applications in carbonated beverages, oils, chemicals and countless other industrial and commercial applications.

SMALL BUT MIGHTY

Good things come in small packages and Temprite liquid coolers are no exception. They're highly compact, require minimum space. A model to fill any capacity requirement.

INSTANTANEOUS COOLING

Water coils are submerged in the liquid refrigerant itself and the heat of the liquid being cooled, passes directly into the main body of the refrigerant. Exclusive Temprite design gives instantaneous heat transfer.

WIDE TEMPERATURE RANGE

Temprite coolers are made to fill a wide range of temperature needs. Super-sensitive control valve assures constant temperature under all operation conditions.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous 80° 40° *Liquid Cooling Devices*

41 PIQUETTE AVENUE DETROIT 2, MICHIGAN

YOU'LL FIND
Eston
REFRIGERANTS
ARE BETTER!

Distributors of
FREON 11-12-22-113

Years of use in all types of refrigeration equipment have proven Eston refrigerants are superior. All are of sustained high quality with exceptionally low moisture content. Servicemen say Eston refrigerants give better performance and more efficient operation. Eston jobbers are conveniently located. Write for complete information.

In the West it's
Eston for Refrigerants

Eston
CHEMICALS, Inc.
3100 East 26th Street
Los Angeles 23, Calif.

of flow of water through a coil of given size, however, depends on the pressure difference existing between the inlet and oulet headers. As the water flows through the tubes of the coil, it is subject to a pressure loss due to friction. The water friction increases rapidly as the velocity of the water increases, making necessary a greater initial water pressure.

Manufacturer's tables generally express the water friction through a coil in *feet of water*. Figure 10 reproduces a representative table giving water friction per pass for various water velocities and specific coil face lengths. Each value given in this table represents the water head loss through the coil, and is equal to the height of a vertical column of water which would be necessary to overcome the friction through the coil at the given water velocity. Thus, when the total water friction for a water velocity of 8 fps and a face length of 120″ is given in the table as 10′, this means that a water head of 10′ is required to overcome the friction of this particular coil when operating at a water velocity of 8 fps. Since 2.3 feet of water are equal to a pressure of 1 pound per square inch, the friction loss of the water flowing through the coil may also be expressed as

$$\frac{10}{2.3} = 4.3 \text{ pounds per square inch.}$$

For a given water velocity, the water friction through a coil of specified size varies inversely as the number of passes the water makes in going through the coil. Since the number of passes varies inversely with the number of tubes per header, the water friction will decrease as the number of tubes leading out of each header increases. Thus a double-circuit coil makes for a smaller friction loss than a standard or single-circuit coil, while a half-circuit coil makes for twice the friction loss. Figure 10 also shows that the water friction increases as the length of the coil increases. Thus, for a water velocity of 3 feet per second and a coil face length of 60″, the water friction is given as 1.1 feet of water per pass of water flow. At the same water velocity, but for a face length of 120″, the friction becomes 1.7 feet of water per pass. When the water velocity is doubled to 6 fps, the water friction for face lengths of 60″ and 120″ becomes 4.0 and 5.9 feet of water respectively.

RAILROAD stations, "hottest spots on earth" to travelers in air conditioned trains, soon may be as comfortable as the trains themselves if some present trends continue. Spokesmen for Refrigeration Equipment Manufacturers Association report a high peak in interest in air conditioning railway stations and air and bus line terminals.

As one railroad man put it, "Most stations today are built to house the 'iron horse' of another era, and not the streamliner of today! But now, more than 13,000 railroad cars are air conditioned, and air conditioned stations are needed to keep pace."

Typical of what can be accomplished in modern passenger terminal comfort is the newly air conditioned station of Texas & Pacific Railway in Shreveport, La., where hot weather is commonplace. Comfortable indoor conditions are maintained at all times with constant 55% relative humidity. Waiting rooms and ticket offices on the first floor and offices on the second are served by the system, equipment consisting of one 40-ton and one 50-ton air conditioning system, with ducts used for cooling in summer and for heating in winter.

DETECTS
EVEN THE SMALLEST
GAS LEAK
IN "JIG TIME"

Turner

HALIDE REFRIGERANT GAS LEAK DETECTOR

Find leaks involving all chlorinated hydrocarbon refrigerants quickly and accurately with Turner's highly-sensitive Model H-1 Halide Detector. This blow-torch-type burner employs a simple chemical principle . . . flame becomes *green* whenever gas is present in the area surrounding a defective cooling unit. Designed and constructed throughout for long, dependable service. Has a flexible exploring tube for easy probing in "hard-to-get-at" places; holds one pint of alcohol fuel; measures 8" from handle to tip of burner x 7⅛" high x 4½" wide; can also be used as a blowtorch.

AVAILABLE FOR IMMEDIATE DELIVERY

Made by the manufacturers of nationally-known Turner Blow Torches.

THE TURNER BRASS WORKS

SELECTION OF MOST DESIRABLE COIL HEADERING ARRANGEMENT: It is important in water coil selection to strike an economic balance between (1) the quantity of water used and (2) the power required to force this water through the coil. When water is originally available under pressure, full advantage should be taken of this pressure to give the greatest possible water velocity through the coil. When the water has to be pumped, however, high water friction loss through the coil should be avoided even at the sacrifice of increased water velocity, in order to keep water pumping costs at a moderate level. Figure 9 shows that at higher water velocities, an increase in water velocity produces a smaller corresponding increase in the K factor. In actual practice, therefore, there is little advantage in using water velocities in excess of 8 fps. Velocities in the range of 3 to 6 fps

For average quantities of water at moderate pressures, coils are generally selected headered in such a manner that there is one pass of water for each row of coil (single-circuit arrangement). Where large quantities of water at low pressures are available, coils may be circuited with 2 rows of coil to each pass of water (double-circuit arrangement). Where the quantity of water available permits the use of a coil of this type, a smaller temperature rise of the water passing through will result than if a single circuit coil were used with half the volume of water but twice the water velocity. Since the overall capacity of a coil at constant water velocity is a function of the average temperature difference between water and air, a double circuit coil will permit the use of a lesser amount of surface than a single circuit coil, providing that the water supply is of sufficient quantity so that the water velocity remains the same.

When the water quantity available to do a specific job is so small as to result in a water velocity of less than 3 fps through a single circuit coil, it is advisable to resort to the use of one-half or even one-third circuit coils. An optional method is to use

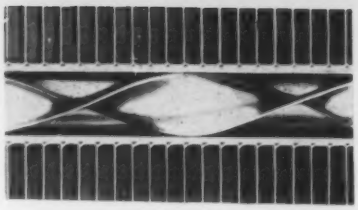


Fig. 11—Cross-sectional view through tube containing turbulator. (Photo by Trane Co.)

"Believe me, mister—that sign really means what it says!"

"MAKE MINE THE GAUGE WITH THE RECALIBRATOR"...

That's the final verdict of refrigeration men who know their gauges and dial thermometers. They look upon the Marsh "Recalibrator" as a feature that makes a better instrument still better.

There is a good, solid reason for this: Every refrigeration man knows how difficult it is to avoid knocking gauges out of adjustment, particularly test gauges that receive rough handling in the tool kit and on the job. But when this happens to a Marsh gauge, you simply turn the "Recalibrator" screw as illustrated until the pointer coincides with zero. This, remember, is not merely re-setting of the pointer, for the "Recalibrator" is designed to actually re-establish the relationship between the bourdon tube and the movement. Thus it corrects the gauge at all points on the dial—the only basically sound way to do it.

Yes, it's reassuring to use these instruments that are so easy to keep on the beam. All are available with the "Recalibrator". Ask for handy booklet covering gauges and thermometers for refrigeration service.

JAS. P. MARSH CORP., 2055 Southport Ave., Chicago 14, Ill.
Export Department: 155 East 44th St., New York 17, N. Y.

Marsh Refrigeration Gauge —made in pressure, compound, and ammonia types.

Marsh Serviceman—remote reading service thermometer —now available in range —30°F. to +65°F. for work on quick-freeze units.

MARSH Refrigeration Instruments

ROGERS
Dry Beverage COOLER

39 in. high
30 in. wide
6, 8 or 10 feet long

Beautiful stainless steel and polished aluminum outside with polished aluminum interior. Heavy duty fin-type coils give fast cooling and less frosting. Rugged construction, first quality materials. Stainless steel lids slide away or lift out. 8-inch utility shelf. Removable dividers inside. Toe space under edges.

Complete Line of Refrigeration

Immediate Delivery | *Dealers Wanted*

W. ALLEN ROGERS Industries

Box 272-RI Demopolis, Ala.

FREEZER SENTRY

THE POSITIVE ALARM FOR ALL FROZEN FOOD CABINETS

• The simplest device you have ever seen to warn of mechanical troubles. Designed for use in any low temperature cabinet. Can be installed in two minutes by anyone.

Buzzer, battery operated. Trickle charger insures five-year battery life. Buzzer operates 100 hours. Actuated at plus 12°F by mercury contact. No thermostat to get out of order. Action is as positive as gravity.

A package item that sells itself on the first service call, or to new owners of freezers.

Immediate delivery. Write us for details and discounts.

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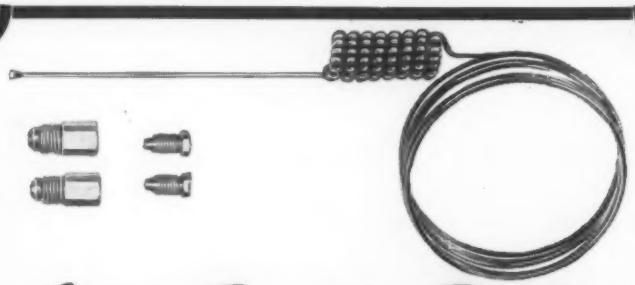


Just Exactly Right..

- Capillary tubes engineered to precise flow control for each particular job.
- Wabash patented coiling process gives a larger inside diameter and provides a tube that is hard to plug up or freeze up.
- Wabash exclusive fittings and adapters mean no-soldering, no-fuss installations.

Available for domestic, commercial, or freezer units 1/3 horse power or below.

ORDER FROM YOUR LOCAL JOBBER

WABASH

MANUFACTURING COMPANY
2642 S. Michigan Ave., Chicago 16, Ill.

a "swirl strip" or "turbulator" within the tubing of the coil, thereby increasing its capacity by providing a more intimate contact between the water and the inside surface of the tube. A cross section of a tube containing a "turbulator" is shown in Figure 11. As may be expected, the use of "turbulators" results in an increase in the water friction through the coil.

Other features which may be built into water coils are (1) drain plugs to permit removal of water as a protection against winter freeze-ups, and (2) removable plugs at each end to permit cleaning of the tubes when used with water containing sediment. This latter feature is especially important in installations using well water, for this type of water generally contains silt and other solid impurities.

NEW REWA MEMBER

Sam Schwartz, 2071 Webster Ave., Bronx, N.Y., has been unanimously elected to membership in the Refrigeration Equipment Wholesalers Association.

SUNBLAD JOINS SEEGER

R. E. Sunblad has been added to the staff of Seeger Refrigerator Co., St. Paul, as assistant superintendent of manufacture. He formerly was with Northwest Airlines.

AN interesting test in big-freezer merchandising by a department store has been launched by R. H. Macy & Co., New York City. In a large-space advertisement in the *New York Times*, Macy's announced that it is prepared to take orders for "Frigid-Freeze" walk-in frozen food cabinets in sizes of 160 cu. ft. to 730 cu. ft. and up. The advertisement is directed mainly at owners of country estates, roadside inns, hotels, restaurants, clubs, frozen food stores, institutions and farmers.

This is Macy's first venture into big-freezer selling, although the store has for some time been merchandising smaller sizes of "Frigid-Freeze" cabinets. The units are manufactured by Refrigeration Corp. of America, a Noma Electric Corp. subsidiary.

With the purchase of a "Frigid-Freeze" walk-in, Macy's offers service and a full year's guarantee, with free delivery and installation within 35 miles of New York City.

ACCORDING TO THE NATIONAL INDUSTRIAL CONFERENCE SURVEY, LITTLE IF ANY PRICE REDUCTIONS IN COMMERCIAL REFRIGERATION EQUIPMENT CAN BE EXPECTED THIS YEAR. THERE MAY EVEN BE PRICE INCREASES.

TRUE OR FALSE, INSTALMENT BUYERS WILL STILL CONSTITUTE THE MAJOR MARKETS AND THE NEW COMMERCIAL CREDIT PLAN OF FINANCING IS YOUR BEST BET FOR CLOSING SALES AND NETTING PROFITS.

GET THE FACTS ABOUT THE CHANGES AND IMPROVEMENTS FROM YOUR COMMERCIAL CREDIT REPRESENTATIVE.

COMMERCIAL CREDIT CORPORATION

A Subsidiary of Commercial Credit Company, Baltimore

MORE THAN 300 OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

✓ CHECK WITH *Ranco* FIRST

	Specialists in Refrigeration
✓	More Ranco Controls in Use
	Dependability
	Less Stock to Carry
	Greater Customer Satisfaction
	More Profit for You

OVER 12,000,000 RANCO CONTROLS IN USE

Your job is easier when you work with Ranco Refrigeration Controls, because you'll find more Ranco Controls than any other make used on original refrigeration equipment.

The choice of leading refrigeration manufacturers, Ranco Refrigeration Controls are likewise the choice of refrigeration service men who demand dependable, satisfactory performance.

Your Ranco wholesaler is ready to serve you; ask him for complete information or write direct to Ranco Inc.

Ranco Inc. COLUMBUS 1, OHIO

World's Largest Manufacturers of REFRIGERATION CONTROLS

"Let's share our knowledge—exchange our experience"

Here's how

THE SERVICE MAN'S DEPARTMENT

Edited by
Warren W. Farr

What's New for You

We've come across several new products recently that would seem to have definite usefulness in most refrigeration service shops.

One of them is a set of masonry drills, tipped with material several times sharper and longer-wearing than steel. The drills are designed to be used on brick, cement, tile, asbestos, wallboard, marble, carbon, slate, limestone and plaster, and reportedly can be used with hand brace, electric drill or drill press. Sizes range from 3/16" to 5/8" diameter. New England Carbide Tool Co., Cambridge 39, Mass., is one manufacturer of this type product; another is Willey's Carbide Tool Co., Detroit 1, Mich.

A RUBBER plug can be used for lapping piston disc by running a 1½" stove bolt through the center of the plug so that the end of the bolt extends through about ¾". This can be chucked in a drill press and with the use of lapping compound it will lap piston and disc perfectly.

R. J. Pflipsen, Minneapolis

If your service shop is like many we've seen, your stockroom space is limited and aisles are narrow, so that proper lighting is a problem. There's a new light fixture, called "Stocklite", that's designed for use in cramped quarters like these. It has eight different reflecting surfaces to insure proper distribution of light where needed. Curved V-shaped reflectors at either end of the fixture are said to eliminate glare in aisles and to reflect light into the bin interiors. The unit is finished in porcelain enamel, inside and out, and is designed for installation without disturbing the wiring. It is made by Goodrich Electric Co., Chicago 41.

To aid you in carting loads up to 500 lbs. there's a new light-weight hand truck weighing only 19 lbs. and with tubular construction and solid rubber wheels. The manufacturer is Central Equipment Corp., Toledo 4.

Safe Welding Practices

A revised edition of "Safe Practices for Installation and Operation of Oxy-Acetylene Welding and Cutting Equipment" is now available from International Acetylene Association, 30 East 42nd St., New York 17, N. Y., for 25 cents per copy.

Many of you, we know, make extensive use of oxy-acetylene equipment in your daily shop work, and we earnestly suggest that you get a copy of this monograph and acquaint yourself with all the suggestions and recommendations it contains for safe practices in handling the equipment. Storage and use of cylinders, use of blowpipes or torches, eye protection, safe clothing, fire and accident prevention—these are only a few of the subjects covered.

We think you'll find the booklet worth many times the modest cost. It pays to be careful, and to keep up to date on the equipment you're using in your shop. Send orders for the booklet direct to the Association; please don't send them to us.

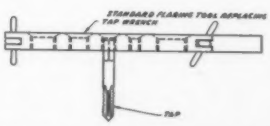
BUY FROM YOUR REFRIGERATION WHOLESALER

When You Service, Be Sales-Minded

One of the major difficulties employers report with their service men is in making them "sales-minded". Now, we'll admit that the term "sales-minded" is pretty much of a catch-all —but one of the things it definitely does encompass is a pride in and enthusiasm for the work you're doing.

When you stop to think about it, it's surprising how much you, as a service or installation man, have to do with completing a successful sale. You may not realize it, but you figure pretty importantly in the salesman's efforts to clinch the sale. He knows—and so should you—that the sale isn't completed until the equipment is installed and operating to the customer's satisfaction.

Installing another unit air conditioner or reach-in refrigerator may

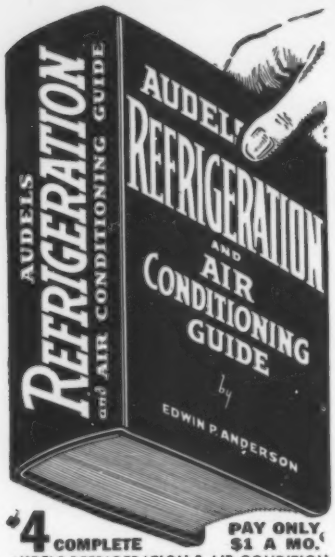


HERE is my suggestion pertaining to a refrigeration tool which I have found useful.

Any standard make of flaring tool can be used as a tap wrench as illustrated in the sketch. This would decrease the necessary quantity of tools to be carried by service engineers, or the device can be used as an emergency tool when no tap wrench is available.

Otto Miller, Newark, N.J.

READ FOR PROFIT



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Step up your own skill with the facts and figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in a handy form. Fully illustrated and Easy to Understand. Highly Endorsed. Check the book you want for 7 days Free Examination.

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Name_____

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Employed by_____ R-22

be just an everyday thing to you—but it's something pretty special to the customer. So, even if you have to work at it at first, put a little enthusiasm in your work on new installations. Let the customer realize that you appreciate the job's importance to him. Compliment him on his choice of equipment, and watch his face while you're doing it. There's a customer that's really *sold*—and you're the fellow who's done the last, essential part of the selling job. You can bet he'll think of you and your company when he (or a friend) needs refrigeration equipment again.

Note to Daniel Eisenberg, Brooklyn, N. Y.:

Please get in touch with this department immediately, giving us your correst street address. We have some money for you.

The Editor.

When You Sell Equipment You Can Sell Service, Too

There's a lot of talk nowadays about 90-day guarantees, 1-year guarantees, and things like that. It seems to us that a lot of folks who are in these discussions are missing a point that ought to stick out like a sore thumb—the obvious point that just selling equipment isn't enough; you've got service to sell, too.

Up until recently, equipment was so scarce that the customer wasn't in much of a mood to quibble over the length of the guarantee period. Maybe he didn't like it much, but he had the equipment, and that was something to be thankful for. But those days are gone—or soon will be—and when time-payment sales become important factors again the 90-day clause may bring you plenty of grief in returned merchandise and dissatisfied customers.

So, why not sell the equipment installed and serviced for one year, and show the installation and service price as a separate item on the contract? That way, you're not giving "free" service—you're selling installation and service and giving both the customer and the equipment manufacturer the protection to which they're entitled.

HELP WANTED

. . . By your fellow refrigeration service engineers. They can use your installation and applications ideas on refrigeration and air conditioning, your short cuts, shop practices, etc.

And there's money in it for you. REFRIGERATION INDUSTRY pays $5 for each idea published. Send yours to

Here's How Editor
The Refrigeration Industry
1240 Ontario St.
Cleveland 13, Ohio

MAGIC IN A SMALL BOTTLE

FREEZE-UPS ELIMINATED RIGHT AWAY!

ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems . . . The dependable liquid anti-freeze.

"ONE SERVICE MAN TELLS ANOTHER - IT'S GREAT"

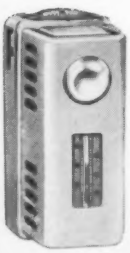
ORDER FROM YOUR JOBBER OR—

EXCLUSIVE NATIONAL DISTRIBUTOR
THE HARRY ALTER CO. 1728 S. MICHIGAN AVE. CHICAGO 16, ILLINOIS

JOBBERS: WRITE FOR SPECIAL PROPOSITION!

"It never takes long to hook up WHITE-RODGERS Controls"

. . . and once they're in, you can count on them for accurate, dependable performance



Easy to install, easy to adjust — that is why White-Rodgers controls are such big favorites with refrigeration service men everywhere. Mount them at any angle, in any position — they give positive, reliable performance. The visible dials are accurately calibrated in degrees Fahrenheit or pounds pressure and quickly adjusted with only a screwdriver. Nor is waiting or testing necessary — just set the dials and go on to the next job. White-Rodgers Electric Company, St. Louis 6, Missouri.

WHITE-RODGERS

Controls FOR REFRIGERATION HEATING AND AIR CONDITIONING

PROFITS FROM SIDELINES . . .

Continued from page 44

"Parts can be purchased from outside small shops if you don't want to make them yourself, and design and assembly work can then be carried out with a minimum of equipment.

"A lot of refrigeration men with whom I've talked about this imagined that it took a big factory to custom build freezers; we thought so at first until we started tinkering around in rebuilding them. Now it's easy to convince our customers that it is wiser and cheaper to custom build their units than to remodel others as we had done in the past.

"As far as we are concerned it's a lot better business to set up your shop to do such custom building than it is to enter into remodeling and rebuilding. It's certainly less work, there's less chance of unexpected situations arising which can eat up profits, and you have a lot better finished job that will build future business for you both from the standpoint of appearance and of efficiency to the customer."

A third "sideline" of the Martin Refrigeration Co. is the drum rack shown in an accompanying illustration. The firm designed and builds these racks and has sold them all over the country; some 500 have been produced by the Martins who are turning out as many as 25 a day now.

The rack is used to enable one man to handle large cylinders of refrigerants. The rack is secured to the floor in use some four inches from the wall and with the drum in an upright position its cap is unscrewed and the yoke (shown installed on the drums in the photo) is screwed on. The drum is then placed directly in front of the rack about 42 inches out and let down so that the yoke fits into the slots in the frame of the rack. The drum is then up-ended with the bottom resting against the wall at a slight angle to prevent the drum from falling forward.

The stand is constructed of $\frac{3}{16}$" x 2" steel, electric welded, and finished in gray enamel. It is 11" wide, 14" high and 40" long. The yokes are threaded to screw on in place of a cap and are of heavy construction finished

AN excellent market for custom refrigeration equipment is providing large-capacity drinking water coolers, according to Ted Rostock, head of Arcticaire Refrigeration Co., Kansas City, Mo.

Since numerous factories and plant buildings in the Kansas City area have expanded substantially and need more refrigerated water for employes, Articaire offers company heads a chance to save on extensive plumbing and ripping into walls by installing a single package unit which needs one connection only.

Two such water coolers have been installed at the Ark Bakeries in Kansas City, both 150-gallon models enclosed in a self-contained housing, and containing circulating pump, compressor, tank, tap and controls in a space of 4x4 feet. Ample drinking water for up to 300 employes is supplied by each of these.

A similar self-contained 150-gallon unit recently went into the plant of Cook Paint & Varnish Co. Arcticaire salesmen are recommending these oversize, high capacity, custom built water coolers wherever employees are exposed to a substantial amount of heat. Higher costs of such units are offset by the fact that no expensive building changes are involved, and valuable space is saved.

for DEPENDABLE SERVICE
QUICFREZ
The PIONEER of Farm Locker Plants — Now Ready for Immediate Delivery. Place Orders NOW.
SANITARY REFRIGERATOR CO.
FOND DU LAC, WISCONSIN
Farm Locker Plants Since 1939. Ice Refrigerators for More Than 40 Years

AIRSERCO
Short cuts for the service engineer
THERMOSTATIC CONTROL TESTER
Model 3100 — A precision pocket-size Tester that detects and analyzes thermostat defects without removing the control from the cabinet. Saves blind tampering with thermo controls.
ANALYZER — A "must" service instrument that starts up defective compressor units without tearing apart the motor assembly. Starts both hermetic and open-type units up to ½ h. p. under actual working conditions — and may be left on the job for emergency service 56 starting combinations.
VALVE ANALYZER — A revolutionary time-saving instrument that tests and sets the superheat requirements for all types of Thermostatic Expansion Valves. Provides laboratory accuracy on the job—eliminates all guesswork.
STEEL TANK HOLDERS
Facilitate the SAFE transfer of refrigerants in the shop and on the job. Lightweight, free-standing, portable, and color coded.
SEND FOR CATALOG A-47
AIRSERCO
MANUFACTURING CO., INC.
435 MELWOOD ST., PITTSBURGH 13, PA.
EXPORT OFFICE: Melchior, Armstrong, Dessau Co., Ridgefield, N. J.
BRANCH OFFICES: Boston, New York, Pittsburgh, Cleveland, Knoxville, Minneapolis, Los Angeles

in different colors as desired by customers.

All of these "extra profit" enterprises of the Martins might lead one to believe they are neglecting their refrigeration service which is, of course, far from true. They have, as previously mentioned, more than 500 accounts whose needs are handled regularly, and in Denver that's not so bad for there are plenty of refrigeration service firms in the business.

Service business is built through "hard work directed toward keeping a customer satisfied and making as few mistakes as possible," the Martins explain. They regularly distribute blotters, calendars, matches, key rings and other novelties as advertising and have an advertisement in the telephone directory.

Mr. Martin does not believe in keeping large stocks of parts on hand.

"In smaller cities it may be necessary," he declares, "but in a big place like Denver a service shop owner is foolish to tie up his capital in a lot of parts when he can secure them from a jobber just a few blocks away.

"Maybe when shortages were present such stock-building was a good idea but we'd rather use our capital for other purposes now that jobbers have good stocks of parts on hand all of the time."

Mr. Martin trains new men by putting them in the shop for six months as apprentices working side-by-side with the old hands. After that, if they have shown an aptitude for refrigeration work, they are turned out on service jobs with another mechanic until they have demonstrated their ability to handle jobs alone. His mechanics are now averaging $250 a month and apprentices find that a good mark to shoot for.

PERFECOLD ADDS 3 TO OAKLAND STAFF

Three sales representatives have been added to the sales force of the Perfecold Refrigeration Co. of Oakland, Calif., it was announced today by Marvin L. Dahl, manager of the company.

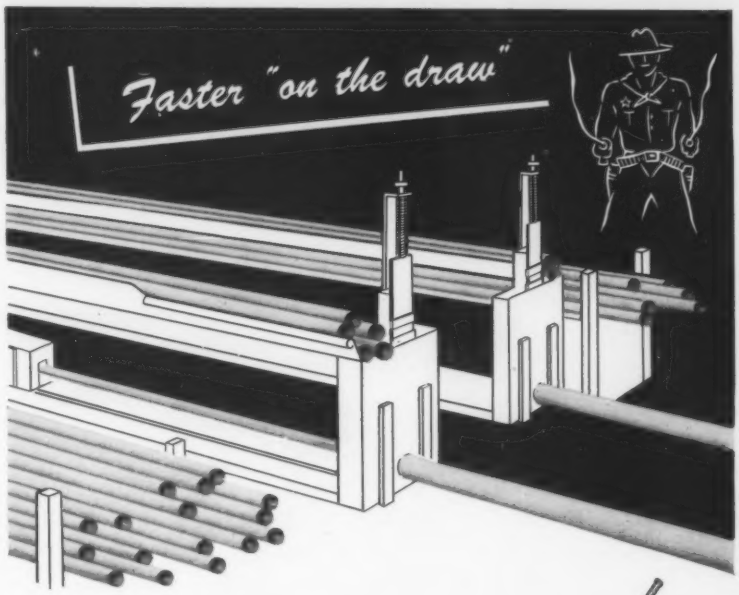
The new salesmen are Frank Harrington, covering the San Leandro-Hayward area; "Scot" Gould, Greater and East Oakland area; and "Johnny" Welch, the Berkeley, El Cerrito and Richmond area.

BOXES GO BY AIR TO COAST DEALER

One of the largest consignments of household refrigerators ever to be transported across the country by air was shipped from the Dayton municipal airport recently to Sacramento, Calif., according to H. M. Kelley, appliance sales manager of Frigidaire Division of General Motors.

Forty-one 7-cu. ft. Frigidaire refrigerators, weighing more than 13,000 lbs, made up the shipment to the Jackson Furniture Co. of Sacramento, Calif. for display in the furniture concern's new display room, which was recently completed.

Mr. Kelley attached special significance to the aerial refrigerator consignment as a "forecast of times to come in the appliance shipping field." He commented: "When you consider moving more than six and one-half tons of refrigerators across the country to a dealer in less than 12 hours, it is certainly indicative of the progress being achieved by both the refrigeration and transportation industries."



PENN IS *"quick on the trigger"* **in recognizing the increased demand for 'Superior' tubing. In the race for product advantage, smart buyers for the refrigeration, automotive and bottled gas industries know that it's the draw that counts - - that's why they turn to 'Superior'. Service men, too, prefer this better tubing for trouble-free installations. 'Superior' is what its name implies - - better 4 ways - - it is dry, seamless, easy bending, and spotlessly clean and bright.**

Furnished in straight lengths or coils 1" (o. d.) to capillary .093" (o. d.)

Plan now to use 'Superior' for all your tubing needs. Be faster on the draw - - write today for further information and colorful literature.

PENN TUBING IS "SUPERIOR"

the
FLARING TOOL
that
works like "sixty"

The Papco #400 is a compact flaring tool that holds six sizes of tube and gives you a quicker, easier and better flare. Send for Bulletin.

GET YOURS NOW

PENN BRASS & COPPER CO.
ERIE, PENNSYLVANIA • Phone 35-111

IN EVERY CAN . . .

A PROFIT BONUS

THERE'S PROFIT in every can of *Texaco Capella Oil* used for compressor lubrication — *plus* the bonus of *additional business* that always comes from customer satisfaction. Service engineers, dealers and distributors all share in the business-building benefits of *Capella Oils.*

Read the list of *Capella Oil* advantages at the right. They explain why these proved-in-service oils do such a good job of assuring long, trouble-free compressor operation . . . and why *Capella Oils* have the full approval of leading manufacturers of air conditioning and refrigerating compressors.

Let *Texaco Capella Oils* earn profit bonuses regularly for you.

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, New York.

BUSINESS-BUILDING QUALITIES OF TEXACO CAPELLA OILS

- High stability
- Freedom from moisture
- Non-reaction with refrigerants
- Resistance to gumming and sludging
- Very low pour tests
- Complete viscosity range
- Re-sealable 1-qt., 1-gal. and 5-gal. containers

TEXACO Capella Oils

FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT

TEXACO

Tune in . . . TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.

ACE ICE CREAM CABINET CORPORATION
ACE
NEW YORK 60, N.Y.

Manufacturers of

ICE CREAM CABINETS

FARM and HOME FREEZERS

FROZEN FOOD DISPLAY CABINETS

SODA FOUNTAINS and BOB TAILS

greater resiliency

Jarrow...

Refrigerator Door Gaskets Are Again Made From Crude Rubber

Always Demand These Quality Gaskets

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

THE PRACTICAL Refrigeration Engineering MANUAL

... by Harold Smith

XVIII. Food Market Refrigeration

PART II

In other large stores, a frozen food locker storage plant or locker storage room is a part of the store service. In such establishments processing and freezing facilities, along with lockers are included in the equipment. The most elaborate stores include smoking, curing and butchering facilities as well as the other services.

All of the fixtures mentioned so far cover the storage part of the super-market. In the retail section of these stores are to be found open-type refrigerated vegetable display cases, usually with water spray to keep the proper moisture on the vegetables to prevent wilting or drying out. Such cases usually use plate coils or fan-type unit coolers for refrigeration.

Large reach-in wall coolers with regular hinged doors or glass sliding doors are used to refrigerate and display dairy products, such as milk, cream, cheese, butter and other items. The meat departments have long lines of refrigerated display cases, either top display type or the double-duty type with top display and additional storage beneath.

STANDARD DISPLAY CASES

These display cases are similar to the ones used in small stores, previously described, so it is not necessary to go into further details regarding them.

The large stores usually have one or more cases designed for the storage of fish and other sea products. These cases are very similar to meat display cases, but are usually constructed so that a bed of cracked ice can be placed in the display section, and on which the sea foods are placed for display and sale.

Fish cases frequently use plate-type coils for evaporators, since they may be installed horizontally, providing a solid shelf on which the cracked ice can easily be placed.

These large stores also may have frozen food cabinets, ice cream cabinets and additional open-front display cases for cheese, other dairy products or smoked meats. Modern stores frequently have refrigerated drinking water fountains for the comfort and convenience of their patrons.

BIG MARKET—BIG USER

From the above outline, it is readily seen that the large market and grocery is an extensive user of refrigeration equipment and fixtures. All of the equipment used in the numerous fixtures described is of more or less standard conventional design, using the more popular types of evaporators.

In the large stores, all refrigeration equipment may be operated from one large condensing unit. This is not usually done, nor is it the most practical way to handle this condition. The equipment used in these stores may be grouped under several classifications, based on temperatures carried within the fixtures.

The air conditioning of the store should be a complete and separate system with its own evaporators, condensing units, evaporative condensers or cooling towers.

The air conditioning, as a separate independent system, may be used as needed throughout the year. The other equipment is in

4 PROMOTED AT MILLS INDUSTRIES

Four men have been promoted to key positions at Mills Industries, Inc., Chicago.

George B. Dardwin has been named vice president in charge of factory operations; Ferris D. Gaskill, formerly production manager, has been named general superintendent in charge of manufacturing; Lewis A. Carroll is new chief industrial engineer, and Herbert Bendfelt has been appointed chief engineer.

NEW PLANT WILL UP FREEZER OUTPUT

Leasing by Universal Refrigeration Co., Los Angeles, of the Century Aircraft plant at 5601 West Century Blvd., Inglewood, has been announced by Roy Neuer, president of Universal. The new location, providing 148,000 sq. ft. of space, will quadruple production capacity for the company's "Freezmaster" line of frozen food display cases and commercial and home refrigeration equipment. Former location at 1854 South Western Ave. will be retained.

continuous daily use from one year to another.

When water cooling is installed, this should be a separate system with its own condensing unit. The other coolers, cases and fixtures may be set up either as individual units (usually most satisfactory) or may be installed in multiples.

When these fixtures are grouped together for multiple operation, it is usually desirable to put fixtures used for meats and fish together, as they are operated on temperatures ranging from 34-38F. Vegetables and dairy products also may be grouped together, since they require temperatures ranging from 36 to 42 F. Frozen foods and ice cream, with sub-zero temperatures, also group well together.

With groups in multiple installations as outlined above, a large installation of this nature can be handled with four or five large condensing units; and by keeping fixtures with similar temperature ranges in each group, the minimum number of special controls are required and the problem of adjustment is relatively simple.

HAND CONTROLS ADVISED

If equipment is grouped in multiple installations, it is advisable to have hand control valves installed on all liquid and suction lines to each fixture, so that refrigerant going to any one fixture may be shut off for adjustment or repairs.

Large important installations, such as we have described, often use stand-by condensing units for availability when any of the regular condensing units are in need of repair.

This added investment constitutes real operation insurance and can provide a great saving to the store owner should any unit go out of service and require extensive repairs.

The usual engineering methods are employed to determine the size, capacity and type equipment to be used. Each fixture must be figured as a separate item, and once the load requirements for all fixtures have been figured any desired grouping for multiple installation may be worked out, together with the proper size condensing unit and other equipment necessary to do the job.

When several large condensing units are used with water cooled condensers quite frequently it is advantageous and economical to consider using an evaporative condenser or inside cooling tower.

COOLING TOWER USE

In extremely large capacity jobs an outside cooling tower may be advisable. While water usually appears to be a comparatively reasonably priced commodity, with heavy usage the cost of water for condensing purposes in many instances would quickly pay for the additional investment in evaporative condensers. This is almost definitely a requirement with the air conditioning system.

With large installations, arrangements for a quarterly or semi-annual inspection of equipment is a profitable procedure for the refrigeration man and is usually equally profitable and satisfying to the store owner, often preventing what might otherwise develop into expensive and annoying breakdowns, seriously impairing the efficiency of the store operation and service to the store's customers.

These periodic inspections also eliminate the responsibility of looking after the equipment, as far as the store owner is concerned. Usually in a store of this nature there are no refrigeration mechanics employed and with such expensive and valuable equipment in use an inspection service, properly handled, is worth many times its cost.

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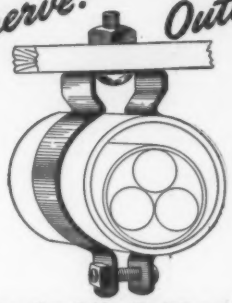
Steel HANGERS, CLIPS, STRAPS

Outserve! Outlast!



Minerallac Cable, Conduit and Messenger Hangers are STEEL. Easier, quicker to install; permit speedy, compact wiring; economical. Also in Everdur . . . Porcelain Insulating Bushings available.

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Jiffy STEEL Clips (Pipe-clamp) require only one screw, nail or bolt; rib-strengthened; for hanging pipe, conduit, BX cable, mounting coils, etc. Millions in use.

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Steel Straps for Messenger-cable services on outlet boxes; may be used in conjunction with hangers.

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Order from your Electrical Wholesaler. Send for literature.

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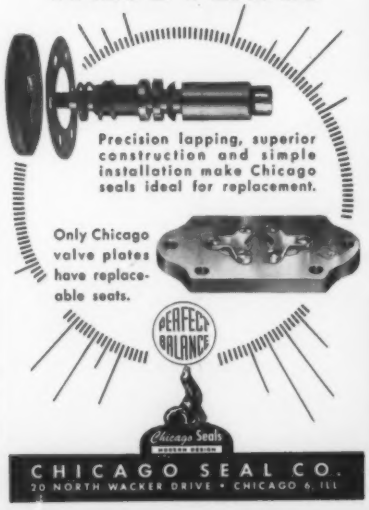
Precision lapping, superior construction and simple installation make Chicago seals ideal for replacement.
Only Chicago valve plates have replaceable seats.
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PROVE YOUR PRODUCT

WITH THE

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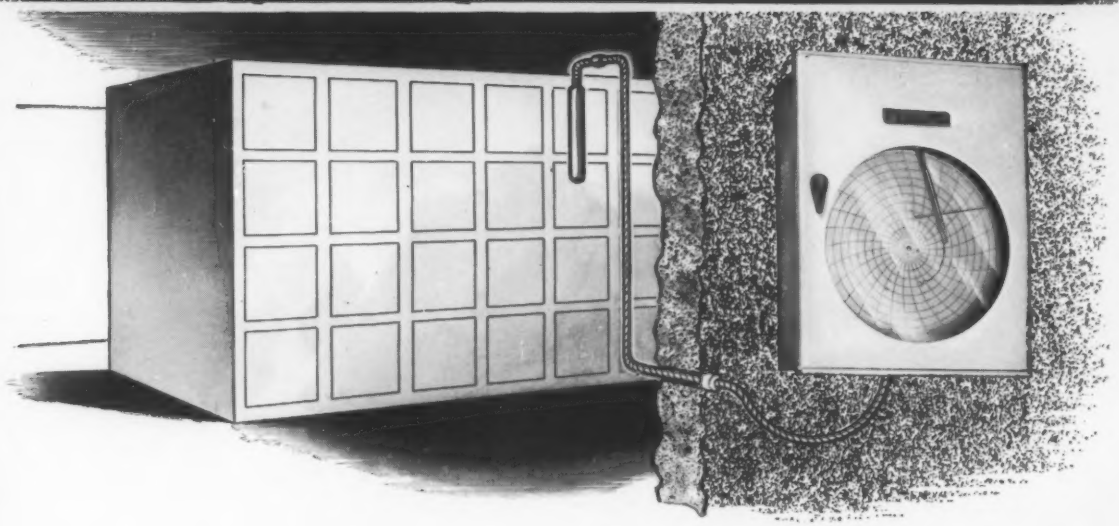
Automatic

TEMPERATURE RECORDER!



YOUR product is the service you render—prove its quality with continuous and permanent charts made by the new Honeywell Automatic Temperature Recorder.

Both you and your customers will benefit when you install Honeywell's Recorder. Your customers want proof that their stored foods are kept at safe temperatures. New customers will be attracted by your reliable and efficient service. And you, as owner, have a constant check on the proper functioning of your plant—immediate notice of any failure. Honeywell charts may be kept and filed as permanent records, giving you protection against possible claims of food spoilage.

Located conveniently at eye level on a wall outside the locker room, the Honeywell Recorder has a range of −30° to +70° F. Normal operating temperatures recorded on the outside edge of Honeywell charts are easier to read than on ordinary recorders.

Ask your contractor or jobber for complete information about this new Honeywell refrigeration control, or write Minneapolis-Honeywell, Minneapolis 8, Minn. In Canada: Toronto 12, Ontario. Branches and distributing offices in all principal cities.

MINNEAPOLIS Honeywell CONTROL SYSTEMS

IS THE Wholesaler needed in our competitive economy? Is the continued existence of the wholesaler dependent upon vigilant action in combating both the direct and veiled attacks upon the so-called middleman? The answer to both of these questions is yes.

In our free enterprise economy we find a highly successful and well-organized system of distribution, starting with manufacturer—through the wholesaler—to the many, varied distributor retail channels—on to the ultimate consumer.

"Wholesaling is the largest business in the United States, exceeding retailing by more than 10 billion dollars annually and transacting a business in 1946 of more than 100 billion dollars," according to the National Association of Wholesalers. "The indispensable service performed by wholesalers in the distribution of the products of our factories, farms and mines is not understood by our people."

There is no industry existing in our country today in which the wholesaler provides a more necessary or important link in the merchandising chain than does the refrigeration equipment wholesaler.

Refrigeration is a business largely devoted to preserving perishable products, particularly foodstuffs, from spoilage prior to their sale and ultimate consumption. Throughout the world billions of dollars worth of food products are placed in the hands of the consumer largely because of refrigeration. Without refrigeration present-day distribution would be entirely impossible, millions of people in America would go out of business and other millions of people throughout the world would starve. When refrigeration stops, temperatures rise rapidly and products quickly spoil.

Wholesaling generally is largely a matter of having the products in the many localities for adequate retail distribution and to replenish stocks as supplies run out.

Wholesaling in refrigeration not only involves this requirement, but also, by the nature of the business and its responsibilities to the consumer public, requires that these necessary products be definitely available for quick handling when needed. Wholesaling of refrigeration equipment and supplies is a profession requiring much knowledge and specialization.

Thousands of refrigeration technicians, regularly securing their supplies from the wholesaler, have little or no idea of the work, organization

and specialized knowledge required on the part of the wholesaler, to make it possible for a refrigeration man to walk into the wholesaler's place of business and find available in stock, all the parts needed to quickly repair a refrigeration unit or to make an installation of a new unit. This well-established and apparently natural condition involves a great amount of knowledge, judgment, anticipation and physical activity on the part of the wholesaler and his organization.

The wholesaler is a specialist, a silent partner in every refrigeration business and activity. He acts in the capacity of an engineer, purchasing agent, expediter, stenographer, stock man, record clerk, bookkeeper, receiving-shipping clerk and as a banker to the hundreds of refrigeration companies who deal with him. The wholesaler furnishes all of these services to

BUY FROM YOUR REFRIGERATION WHOLESALER

LOWER COST—Better SEAL Brush or Spray Adhesive COLD

The MODERN way to adhere vapor-seal membranes and insulations is to apply Laykold Adhesive COLD, right from the barrel, either with brush or high-pressure spray. YOU like the ease of handling and LOWER LABOR COST. Your CUSTOMERS like the complete SEAL which gives them LOWER MAINTENANCE and OPERATING COST.

Laykold

INSULATION ADHESIVE

Seals Membranes — Adheres Insulation

1. **COSTS LESS** in labor to apply.
2. **NO FIRE HAZARD** to job, men.
3. **NO WAITING** for heating.
4. **NO FUMES** to breathe, to taint stored food products.
5. **TIGHTER SEAL** — pressure spray penetrates, seals.
6. **UNIFORM ADHESION** — no lumps, no missed spots, air pockets.
7. **SELF-HEALS** nails, skewers, cracks, insulation joints.
8. **STAYS ALIVE** — keeps adhering.

Other LAYKOLD Products

WEATHERCOAT — protection for block insulations, concrete, brick.

HYDROPEL — an admix to reduce water absorption in concrete.

FLOOR MASTIC BINDER — to make ideal floors for cold rooms.

FIBRECOAT — protection for metal and bituminous roofs.

REFRIGERATION BINDER — for waterproof plaster finish and with Lumnite, a wet wall adhesive.

Spray Laykold Products and reduce labor costs. Try them on ONE job — you'll never want to go back to old methods.

Ask our nearest office for literature, specifications, prices.

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all levels of the refrigeration trade, working on a profit margin so small that unless he is both experienced and efficient, his large capital investment and total years efforts will end up in the red after all the bills and taxes have been paid.

The wholesaler gambles, not only that he will derive a profit from his specialized effort, but also that he will invest his capital in the proper items in inventory, that he will have these items available in sufficient quantities to take care of the requirements of his trade, that he will handle only items that are satisfactory and acceptable to his customers, that his customers will continue to support his efforts to supply them merchandise, that when he extends credit to his customers for merchandise purchased, they will eventually pay him his bill.

The wholesaler is a specialist with great confidence in the people who support his activities and whose activities he underwrites.

Old-timers in this refrigeration industry can recall the conditions existing in the industry before the day of the wholesaler. The picture is not a pleasant one. Ask any old timer. He often waited for weeks for a shipment and then received the wrong parts, due to some misunderstanding.

He found that he was unable to buy this or that because he was not signed up as a dealer in the distribution program of some manufacturer. He faced long delays in shipment because he or his credit position was not known by those with whom he was trying to do business. He put merchandise in his stock, tying up his capital, only to find the items couldn't be used or were not desirable.

He wasted precious productive hours shipping or receiving goods for repair and replacement. He used both time and postage ordering materials or straightening out mistakes on lost shipments or other matters of confusion, when he should be making money on the job. Yes, these are all a part of the old order, things that made up the daily tasks and problems of the refrigeration man before the advent of the wholesaler.

No one who ever combated these situations in days gone by would wish to tackle them again for the small compensation allotted the wholesaler for taking these responsibilities off his shoulders.

The nature of the wholesaler's business is such that he must, of necessity, confine his activities strictly to wholesaling. The wholesaler merchandises materials to all trade levels of the industry and can not hope to continue to enjoy this business if he, in turn, competes with his customers in the various trade levels. A wholesaler should not expect support from his trade if he makes installations for the consumer, does service work for the consumer, or sells refrigeration merchandise to the consumer, as he would then be competing with the very customer he is trying to sell.

The wholesalers' customer, in turn, will always benefit by this specialization and will also find that success in his own branch of the business is tied-in with close application to the many problems he is normally forced to handle, without making any attempt to operate in the specialized business of wholesaling along with his other business.

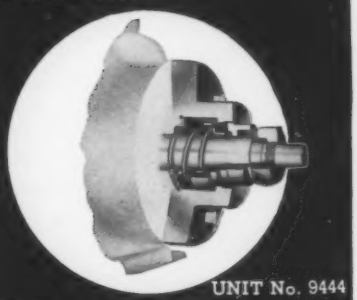
BUY FROM YOUR REFRIGERATION WHOLESALER

Rotary Seal

REPLACEMENT UNITS

are available not only for the smaller size compressors normally used for household refrigerators, but also for...

MANY OF THE LARGER SIZES AS USED IN COMMERCIAL, SEMI-COMMERCIAL AND AIR CONDITIONING INSTALLATIONS



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YOU GET *All* THE IMPORTANT BENEFITS WITH ROTARY SEAL

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Available for over 848 models as shown on our stock list

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See your jobber!

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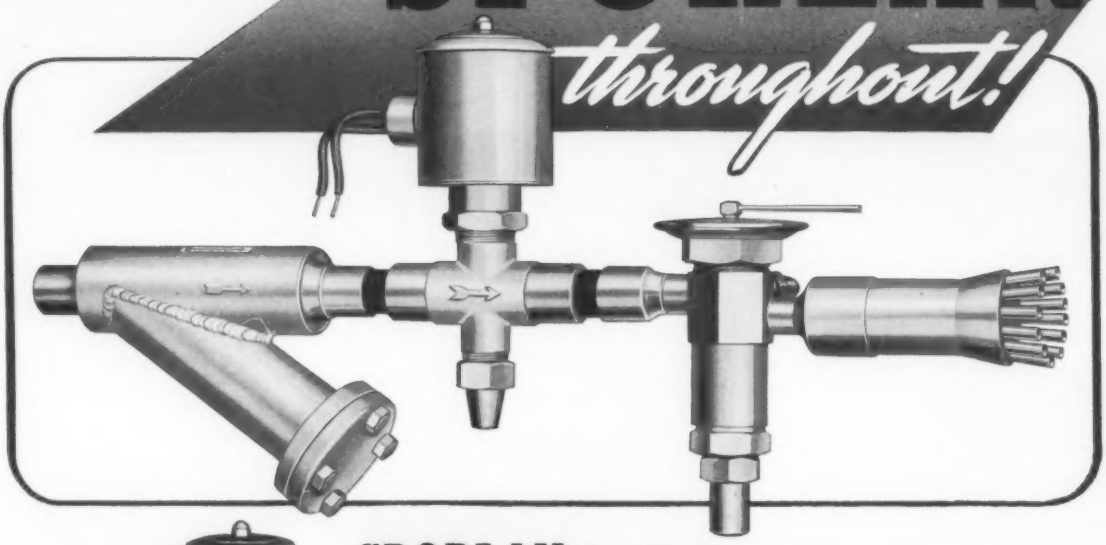
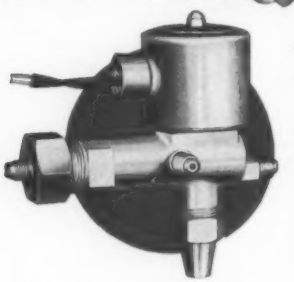
For Peak Performance

on all Air-Conditioning Installations...

use **SPORLAN** *throughout!*





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For any installations larger than 10 tons Freon ...you can save money 3 ways by using the Sporlan Solenoid Pilot Control in place of a conventional Solenoid Valve. The Sporlan Solenoid Pilot Control *costs less*, is made in *one size only*, is *more economical to install!*

Sporlan Products are designed to give the best performance characteristics under all operating conditions.

Use Sporlan Throughout on your next jobs and see for yourself what we mean by peak performance.

FOR ALL SIZES AND TYPES OF
COMMERCIAL AND INDUSTRIAL REFRIGERATION APPLICATIONS
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SOLENOID VALVES • SOLENOID PILOT CONTROLS
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STRAINERS • CATCH-ALLS • *and the Only*
THERMOSTATIC EXPANSION VALVES
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SPORLAN VALVE COMPANY
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YOU PAY—THEY'LL STAY . . .

Continued from page 37

parts installed in the course of routine service work as well as to complete units sold for new installations. For warranty work, which of course is not billed to the customer, the service man is paid a flat rate of $1 an hour.

Each service man's record is kept on a separate pad of paper which is ruled into columns in which are entered the various factors involved on each job. Collections made by each man are tabulated weekly. Each man's weekly pay is then calculated on these same tally sheets.

For the first month of employment each new outside service man is guaranteed $50 per week. This is to give him an opportunity to build up a "clientele" of his own—that is, a group of accounts to whom he is known and which will serve as a nucleus around which to expand his contacts and operations.

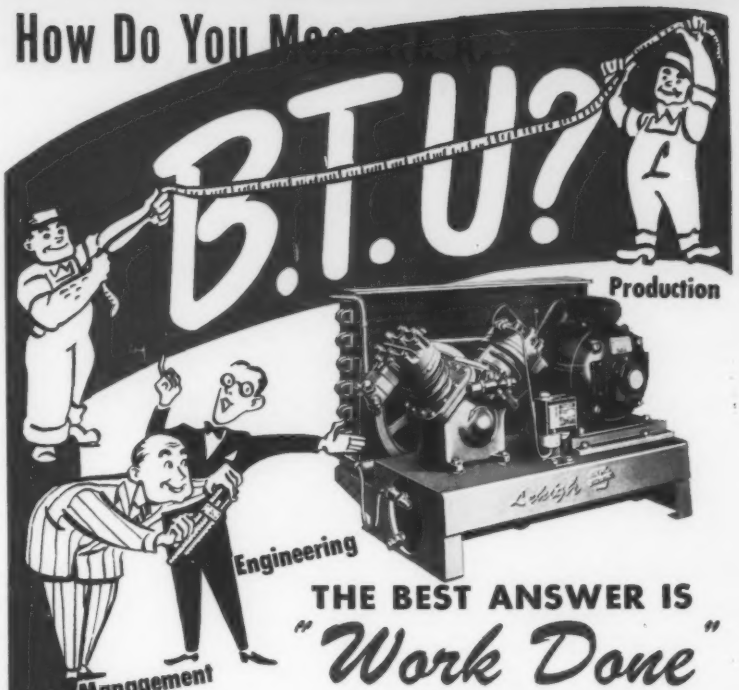
Shop Work Separate

The three outside service men which Mr. O'Hara employs do very little shop work, helping out on the inside only when business on outside calls is very slow. Two men are employed especially to handle all shop work, and these men are paid on a straight hourly basis.

The service shop itself sometimes is used as a training ground for prospective outside service men, these men being switched to the more lucrative outside servicing only after they have proven their ability in the shop to handle virtually any kind of job.

Indicative of the effectiveness of this plan of remuneration is the O'Hara firm's turnover record among its service employees. The youngest, in point of service, among the company's three outside service men has been with the organization for seven years, while the other two boast service records of eight and nine years, respectively, in Mr. O'Hara's employ.

The collection record of the O'Hara organization also has been a standout since the outside service men began getting a cut of all they brought in. Recently, in fact, bad debts have averaged less than $100 each year on an average annual business volume of $100,000, a loss of less than 1/10 of 1% due to failure to collect from customers.



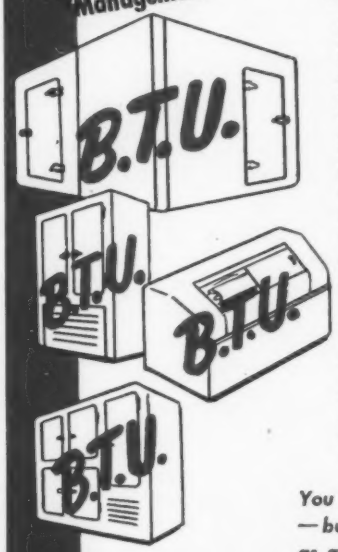
THE BEST ANSWER IS "Work Done"

B.T.U. specs can be informative — or they can be as misleading as "100% All Wool". Of course capacity is important—if the figures are A.S.R.E. But "work-factor" weighs heavily, too. How long will the unit live up to the values implied on the label? That's where observation and comparison comes in when you pick a condensing unit. That's when you look for the plus qualities — the extras that BLU-COLD offers:

1. *A field record that amazes users and dealers because it is so near absolute perfection. Ask any of them . . . or ask us for field reports.*

2. *Experience and facilities to produce quality consistently—over a quarter century of it. One of the largest and most modern plants in the country — from huge foundry to automatic tool shops.*

You don't see these extras on a B.T.U. rating — but you need them for complete satisfaction as a seller, or as a user of condensing units.



Lehigh BLU-COLD
ALL-PURPOSE
HEAVY DUTY
CONDENSING UNITS
Now available from 1/3 to 2 H. P.

Lehigh BLU-COLD COMMERCIAL REFRIGERATION

Lehigh Manufacturing Co.
PLANT: LANCASTER, PA.

OPPORTUNITIES

Classified Advertising Section

Rates: for "Positions Wanted" $3.50 minimum, limit 25 words. For all other classifications, $3.50 minimum for 25 words, each additional word 10c; boldface type or all capitals, $6.00 minimum for 25 words, each additional word 15c; limit 50 words. Box addresses count as five words.

REPAIR SERVICE

Refrigeration Controls and Valves Repaired. Complete service for all makes and types. Also Stoker and Oil-Burner controls repaired. All work guaranteed. Write for prices or just mail in controls. Acme Control Service, 5521 Lawrence Ave., Chicago 30, Ill.

FRANCHISES AVAILABLE

Compressors and condensing units for commercial and domestic refrigeration, air-conditioning and reverse cycle heating. Modern, two-stage, single piston, reduced size and weight—reduced power requirements—reduced cost and greater margin—greater volumetric capacity—greater efficiency.
Real opportunity for quality merchandisers.

Manco Corporation
39 South LaSalle Street, Chicago 3, Illinois

EQUIPMENT FOR SALE

FOR SALE: 12 - 16 - 19 - 22 and 26 cubic foot freezer cabinet. Write for list and prices. Rathbun Refrigeration Company, 325 Scribner Ave., N. W., Grand Rapids, Michigan.

Quality bobtail fountains; reach-ins, walk-in boxes—wood, metal; dough retarders; double duty cases—stainless steel, porcelain; dairy, florist, bakery cases; ice cream hardening cabinets; thermopane frozen food cases; milk, sandwich coolers; stainless steel back bars; with machines. Equipment made to special order. Frigitemp Corp., 931 Bergen St., Brooklyn 16, N. Y. MA 2-9093.

FOR SALE—Air-cooled & Water-cooled, remanufactured condensing units, ¼ up to 2 H.P. Write for particulars, Edison Cooling Corp., 310 East 149 St., Bronx 51, N.Y

SEALED CROSLEY TERMINALS. Installed from the outside in a few minuntes without opening the compressor. Corrects leaky terminals on all Crosley "F-12" units. Set of three $6.75 (Part No. 1020). Installation tool $1.65. Immediate delivery. Money-back guarantee. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

THE MOTOR-START CAPACITOR YOU NEED... *When you need it!*

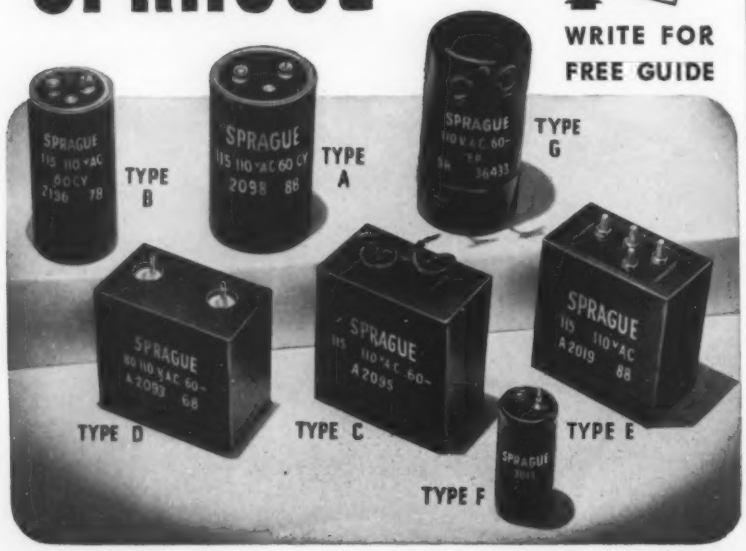
Keep a small supply of Sprague UNIVERSAL Motor-Start Capacitors always in stock. Be prepared for fast, accurate service on any refrigerator replacement. These sturdy little units are first choice of leading equipment manufacturers. They're smaller mechanically, better electrically. Only eight types equip you for quick service on almost *any* job. Our FREE GUIDE tells you exactly how to select the right one.

SPRAGUE PRODUCTS CO., North Adams, Mass.

A NEW COMPLETE STORY ON MOTOR STARTING CONDENSERS
WHY STOCK ALL THESE..
WHEN THIS SMALL UNIT OF THE CORRECT CAPACITY WILL DO ANY JOB

SPRAGUE

WRITE FOR FREE GUIDE



BOOK REVIEW

Title: Audels Electric Motor Guide.
Publisher: Theo. H. Audel & Co., New York 10, N. Y.
Price: $4.

The purpose of this book is to give practical information on the selection, installation, operation, maintenance, control and winding of electric motors.

Each of the thousands of motors installed requires various methods of control, depending upon the particular application, and may vary from a simple face plate starter to a large and complicated automatic control, with several remote control push button stations. It is to supply the need for practical information on all phases of motor control and associated maintenance that this book has been written.

First part of the book deals with fundamental characteristics and control methods of the various types of motors, together with methods of installation and maintenance. Second part is devoted to winding methods and rewinding of motors. The book contains over 1000 pages, with 617 diagrams and drawings.

NEW DISPLAY CASE ONLY 54 IN. HIGH

General Refrigerators Corp., New York City, has recently introduced the "Mighty Midget", an all-purpose display case measuring 48" wide, 54"high and 21" wide. The unit contains 25 cu. ft. of display space and has a 9 sq. ft. double-pane window. Condensing unit is remotely connected, and is powered by a ¼ hp motor. The unit has 3" insulation and a baked enamel finish with chrome trim. Shipping weight is 400 lbs.

NEW STORAGE CABINET IN WEBER'S LINE

Weber Showcase & Fixture Co., Los Angeles, has added to its line of refrigerated case equipment a new type "Back-New" cold storage cabinet, which is modern in design and said to incorporate several unusual features, including Weber's patented "Roll-A-Door" top. Several of these cabinets have been purchased by Safeway Stores for use in storing perishable foods in the stockrooms of its stores.

REFRIGERATION has solved the hot weather problem in Tujunga, Calif., food markets.

Plagued with spoiled merchandise in this small Southern California city where the mercury hovers around the 110 mark during the summer months, Bob Rankin, owner and manager of Rankin's Super Market, has completely equipped his market with Tyler refrigeration cases, installed by Perfecold Refrigeration Co. of Los Angeles. One of the features of the market is the meat department, where 38 feet of Tyler display cases are used to merchandise meat and dairy products.

In the bakery department, Mr. Rankin has converted a Tyler dairy case to keep pies, cakes and candies from spoiling in the warm weather.

Most popular department in Rankin's Market is the liquor counter, which specializes in cold beer for thirsty palates on warm days. (See cover photo.) A Tyler dry beverage cooler keeps 30 cases of beer "on tap" at all times, and a Perfecold reach-in case with glass doors is used exclusively for quart bottles of beer for home use.

FOR *Faster Service* AND
MORE PROFITS
YOU NEED BOTH THESE HANDY KITS

Genuine WAGNER
Fast Moving Electric Motor Repair Parts
AVAILABLE NOW!

M-1—For "one-trip" jobs . . . as useful to the service man as his pliers and screwdriver, and almost as easy to carry. The M-1 kit box is of heavy fiber, contains a variety of 61 of the motor repair parts most commonly needed for domestic appliance type motors up to and including ½ horsepower.

M-2—For your shop . . . a convenient and economical way to get wide coverage of repair parts. The M-2 kit box is of sheet steel, contains a variety of more than 680 fast moving parts for domestic and industrial type repulsion-start induction brush-lifting and capacitor-start motors up to and including 3 horsepower.

M-1 and M-2 kits are available now at our 25 branches and 325 authorized service stations. Or if more convenient, order your kits by using the coupon below.

WAGNER ELECTRIC CORPORATION
6442 Plymouth Avenue, Saint Louis 14, Mo., U.S.A.

Date.....

Please ship ..... (Quantity) Motor Parts Assortment M-1 ($11.25 net each) $.....
Shipping Weight 3 pounds

F. O. B. Point of Shipment ..... (Quantity) Motor Parts Assortment M-2 ($168.75 net each) .....
Shipping Weight 46 pounds

Order No..... Total $.....

Company.....

Address.....

City.....Zone....State.....

M47-21

Wagner WE Electric

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AUTHORIZED
DEALERS
ARE MAKING
MONEY!

Build up your new box sales now with Grunow Service Business!

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SHANK VALVES

It Pays to Use
SHANK
All-Steel GAUGE Sets

All-Steel construction. Safety ball seats in valves automatically shut off liquid in case of glass breakage. Composition packing rings give long life, no leak packing seal.

Shank Valves pay in time saved by eliminating service and replacements.

All-Steel Line Valves—Semi-Steel Shut-off Valves—Expansion Valves—Water Regulators—Strainers—Driers.

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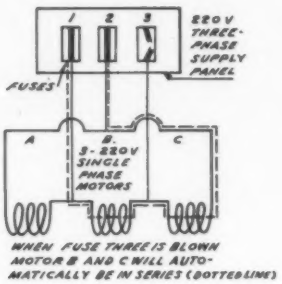
631 W. Jackson Blvd., Chicago 6, Ill.

IT HAPPENS TO ME

By R. W. Brackeen
Borden's Milk & Ice Cream Co.
Kansas City, Mo.



CONVERSATION while you're on a tough job can be bothersome, but it can also be very enlightening—if it comes at an opportune time. For example, take a call that came in to us during a blizzard—the kind of weather in which no one should ever have to go out. It was some trouble with a low temperature route truck.

I tried in various ways to postpone the call, but it couldn't be done; the truck, it developed, was fully loaded in a heated garage. Feeling like a peasant on his way to the treadmill, and with more trouble than can be described here, I arrived at the scene. There were three trucks, their respective condensing units mounted on stands along the walls, using make and break hook-ups.

The garage attendant led me to the line of condensing units. I noticed that only one was running. "See how slow these other two run," he said, throwing the hand switch that was located over one of the machines. (Each had its own hand switch.) Both machines got off to a slow-motion start and with just a low, continuous groan, kept running at what I judged to be about half speed. I pulled the hand switch on the other unit; both machines stopped. Switches on both machines had to be in to get either of them to run just half-heartedly—and one wouldn't run without the company of the other.

I checked the nameplates: single phase, 220 volt, 1½ hp R. I. Next, the wiring: the units were fed by a three wire conduit and the hook-ups were in order.

I figured that the motors must be running at half voltage, and evidently this was caused by their being in series—but how on earth could this be? A test light indicated 220 volts at the hand switches, and the wiring was in perfect order. Well, maybe a chance to pass the buck. "Has anyone been working on them lately?" I asked.

"No." So that chance was out. More to stall than anything else, I took my drop light and started to clamp it into one of the hand switches. (I usually put one clamp on a fuse holder, the other on the box itself, to get 110 volts.)

"You can't use a light off of this juice," the garage attendant advised me.

"Why?"

"It's on a faze."

"You mean it's three phase?"

"I think that's it."

I wasn't too familiar with the problem of single phase motors wired to three phase supply. I drew diagrams of the three motor hook-ups and arrived at the conclusion that a fuse must be blown on the main panel from which this circuit originated. We located the panel, and I was 100% right. After replacing the fuse, oiling the motors, and cleaning the commutators, the line of units went to work nicely. Here's what had happened: a single phase motor had been placed on each of the phases of the supply; a blown fuse at the supply panel placed two motors in series on one phase (the diagram will show you how.)

It happened to me—and it was a bit of incidental conversation that started me on the way to a solution perhaps simple for many service engineers but, at the time, unfamiliar to me.

"RIGIDIZED METAL" IN USE

One application of "Rigidized Metal" stainless cold ban trim is illustrated in this view of a corner of a new Kelvinator home freezer. This specially processed metal has a clear-through imprinted texture which not only increases the rigidity of the metal but also provides a surface which automatically conceals scuffs, mars, and fingermarks. The Rigidizing process is said to be practical for nearly all ferrous and non-ferrous metal sheet and strip. A wide variety of designs is available.

SEES FARMS AS BIG USERS OF FREEZING

Half the farmers in the United States will have freezers, or a rented frozen storage locker, or a combination of the two, within 10 years, it was predicted at the recent Iowa Refrigerated Locker Association meeting in Des Moines by H. L. Sawvell, assistant refrigeration product specialist for International Harvester Co.

"Home freezers and freezer lockers each have their own particular function," Mr. Sawvell said. "They supplement, rather than compete with, each other."

WANTED: A PEN FRIEND

Editor:

I am interested in finding a pen friend, and as I am a reader of your magazine and realize it must have a very large circulation in your country I thought that you might be able to publish an appeal for me.

I am in business with my father on country service and would preferably like someone in the same class of work. I would like to exchange ideas on service, and also service methods and prices, and generally anything connected with the refrigeration industry.

Max Dalby
Arthur Dalby & Sons
38 Trafalgar Road
East Perth, Australia

CANADIAN WHOLESALER CHANGES NAME, SETUP

Effective July 1, the wholesale refrigeration supply division of Railway & Engineering Specialties Ltd., Canadian jobber with offices in Montreal, Toronto and Winnipeg, will be formed into a separate corporation under the name Thermal Controls Ltd.

Railway & Engineering Specialties Ltd. will continue to act as manufacturers of and factory representatives for engineering specialties for the heating and refrigeration industries. The company also handles welding equipment, railway supplies and various industrial lines.

LANGSENKAMP OPENS 5TH WAREHOUSE

F. H. Langsenkamp Co., refrigeration supplies wholesaler with headquarters in Indianapolis, has opened a new warehouse known as Plant No. 5 at 124 Kentucky Ave., Indianapolis.

Every DFN *Dehydrator is*

BAKED DRY-
SEALED DRY
to assure
100% Drying Efficiency

DFN Dehydrators *take up more moisture* on the job, because we *bake out all moisture* during manufacture.

Every DFN cartridge and dehydrator is baked at 300° F. for 3 to 4 hours (depending on the drying agent) in controlled temperature ovens to remove every trace of moisture.

DFN CARTRIDGES are immediately hermetically sealed in new, specially-designed moisture-proof, metal-end containers which preserve factory dryness until used.

DFN FACTORY-SEALED DEHYDRATORS are tested at 300 lb. pressure, baked and instantly end-sealed to provide 100% efficient, leak-proof dehydration.

Thus, **DFN** takes all guesswork out of dehydration. If it's a DFN Dehydrator, you know it is 100% dry . . . and has greater drying capacity. Ask your jobber for DFN Dehydrators. Write us for catalog R-7.

McIntire Connector Co., 257 Jefferson St., Newark 5, N. J.

Only the DFN SYSTEM DEHYDRATES FILTERS NEUTRALIZES

DEHYDRATORS • STRAINERS FILTERS • NEUTRALIZERS

NEW FRUIT VENDOR HOLDS 4 VARIETIES

Among the newest items in refrigerated vending equipment is the "Fruit-O-Matic", produced by Kold Krisp Apple Service, Inc., Van Nuys, Calif. The vendor holds up to four kinds of fruit selling for 1 to 10 cents—and is said to make change, too. Leasing, franchising or selling policies on the new unit will be governed by J. H. Oatey, president of the company.

Easy servicing of the refrigeration unit is said to be possible by a "simple disconnect method" which permits the unit to be free of the vendor by removal from the mounting tract. Patents have been applied for on the vendor's design and features.

NEW FIRM IN L. A.

Airco Refrigeration Co. is the firm name of a new business recently opened by Joseph Holman at 1049 El Paso Drive, Los Angeles.

WHEN YOU RECHARGE

with Virginia SO_2

If you value your time, you should value Virginia "Extra Dry Esotoo," the sulfur dioxide that is consistently pure. When you recharge with "Esotoo," you take the first step in eliminating costly and time-consuming call-backs. Every cylinder is triple-tested to make certain that no dirty, oily or wet product will be shipped—reasons enough why "Esotoo" maintains its international reputation for high quality and dependability. VIRGINIA SMELTING COMPANY, West Norfolk, Va. *Established 1898.*

"EXTRA DRY ESOTOO"
Buy from Your Wholesaler

Distributors for
Kinetic's "Freon" Refrigerants

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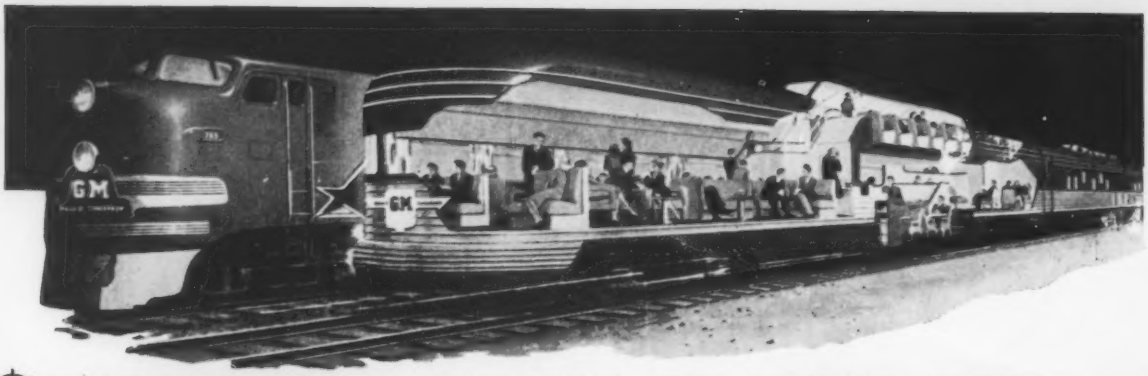
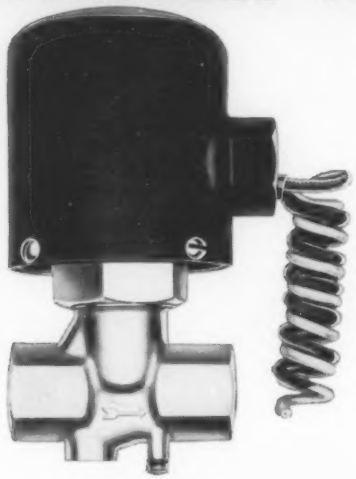
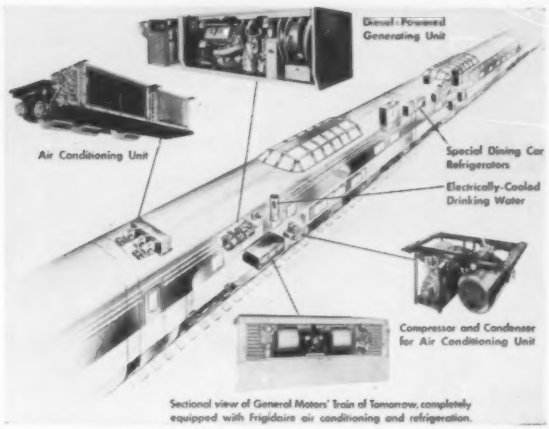


DEPENDABLE VALVES DO THEIR PART ON



A-P 7281 Refrigerant Solenoids—popular with Air Conditioning and Refrigeration Engineers — are doing their part on General Motors Thrilling Train of Tomorrow.


Diesel-Powered Generating Unit
Air Conditioning Unit
Special Dining Car Refrigerators
Electrically-Cooled Drinking Water
Compressor and Condenser for Air Conditioning Unit

Sectional view of General Motors' Train of Tomorrow, completely equipped with Frigidaire air conditioning and refrigeration.

General Motors' Thrilling

TRAIN of TOMORROW

Railroad travelers for years to come will praise the magnificent effort of General Motors Corporation in creating this newest word in traveling comfort and pleasure. For the amazing Train of Tomorrow is smoother-riding, has more restful roomy chairs, the sleeping comfort is increased, you dine in a roof-garden setting and ride in complete air conditioned comfort. All these and more make the Train of Tomorrow a truly remarkable achievement in vacation or business travel . . . a thrill to see today . . . a joy to experience tomorrow.

And A-P Dependable Refrigeration Valves are standard equipment on this fine new train. Just as A-P contributed to human comfort in the *first air conditioned streamliners* to race over the rails years ago, so A-P Valves again contribute to comfort in the new Train of Tomorrow.

New Astra Dome a 32 foot observation deck offers a "Giraffe's eye view of landscape and skyscape."

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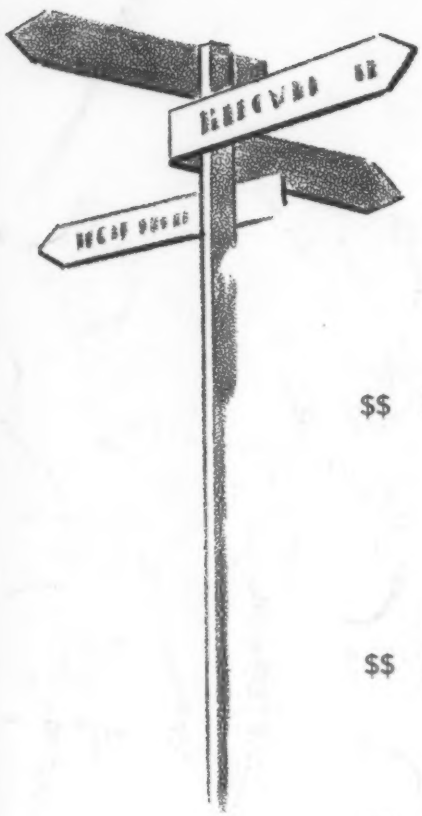
DEPENDABLE *Refrigerant Valves*

STOCKED AND SOLD BY GOOD REFRIGERATION WHOLESALERS EVERYWHERE • RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS



Guides to Profits

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"YOU PAY—THEY'LL STAY" . . . here's a plan of compensation used by one refrigeration firm to keep its service men from straying from the fold.

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$$ SUCCESS STORY

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THE REFRIGERATION INDUSTRY